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India-Rubber at the World's Fair.

THE World's Columbian Exposition is not likely to prove a source of unalloyed satisfaction to all concerned, and some of the rubber-manufacturers are among those having complaints to make. Leaving aside the shortcomings inseparable from any human undertaking, it is unreasonable to suppose that any enterprise placed in the hands of persons inexperienced in the work to be done can be conducted without some failures. While it is possible that on the whole no better choice of managers of the World's Fair could have been made, yet the placing of men without experience in exposition matters in charge of the greatest international exposition the world has ever known is much like employing a force of jewelers from Maiden lane to operate a new rubber-factory. However, this is an American enterprise, and it must be conducted mainly by Americans, and if a sufficient number of men familiar with exposition management cannot be had to conduct all the departments, we may rely upon the American faculty of adaptability to circumstances and the enterprise which stops at no obstacles to make the Chicago exposition, in spite of any shortcomings, the greatest affair of its kind known to history.

But if every department in Chicago had been in charge of such a man as Sir Phillip Cunliffe-Owen, of England, who was identified with the great exhibition held in London in 1851, and who has been concerned with England's part in international exhibitions ever since, having spent a year in Philadelphia in advance of the Centennial Exhibition of 1876 in organizing her exhibit there;—if we say, the Chicago exposition were to-day wholly in the hands of such men, it would not then be possible to bring perfect order out of the chaos caused by the immense number of would-be exhibitors, working each without reference to the others, demanding an aggregate of space many times greater than the content of the buildings, and many of them lacking promptness in their applications. Space cannot be allotted in a great exposition as a new town is laid out, where the first buyer on the ground may select his choice of position, and each purchaser acts independently of every other. All the displays in the exposition must be made with reference to the part which each makes of the whole. In allotting space at Chicago, not only was it necessary to cut down the space asked for by the greater number of applicants, but also to delay the allotments until all were considered, so that those who first made application may have suffered inconvenience on account of the delay of those who came last.

It is to be regretted that all the rubber-manufacturers in the United States did not at an early date resolve to make a combined exhibit, agreeing upon the most effective plans for the same, and arranging for a separate building or for a corner of one of the main buildings, where they could work independently of all other interests represented. The result would have been the greatest display of the rubber industry ever seen. The impression upon the visitors would have been far greater than the combined effect of any number of separate displays, however valu-

able, attractive, or interesting. Some such plan would have insured the public notice of all the displays in the rubber department, whereas no visitor will be certain to see all the separate displays in different parts of the fair.

The great aim of an exposition such as is to be given in Chicago is to educate the people, both at home and abroad, in the nature of the arts and industries, and their products, rather than the making of direct sales. The best display, then, for everybody in the rubber trade, would have been that which made the best impression upon the public mind of the great field for the use of rubber in every department of life, without regard to the individual manufacturers. After this striking object-lesson, the people would have been more ready to listen to the salesmen, agents, or merchants who had rubber goods to sell. An international fair is a general advertisement, acquainting people with the existence of certain wares and conveniences, and serving to open the way to those who mean later to sell goods. The average visitor is little concerned at the time of viewing the display with the name of the company making the product. For all these reasons it is to be regretted that the idea of a combined display, which found space in these pages a year ago, did not commend itself to the trade.

There has been no want of enterprise, however, on the part of our rubber-manufacturers in their individual efforts to be creditably represented at Chicago, and such of them as have succeeded in securing satisfactory spaces will, we are certain, demonstrate to the observant visitor the high degree to which this industry has been developed in the United States.

The New Rubber-Shoe Prices.

ANALYSIS of the new rubber-shoe price-lists shows a larger price for the manufacturer than heretofore, though the prices to consumers are lower. All who are familiar with the trade, however, understand that for some time past the public have not been paying the full list-prices, on account of the cutting which has been indulged in by dealers of every kind under sharp competition. There has been great want of uniformity of system with regard to prices. The new discounts would indicate on their face a reduced profit for dealers. This is more apparent than real, for the same reason, namely, that dealers have not heretofore availed themselves of the full advantage of the liberal discount offered. It is not natural that dealers who are allowed a discount of 50 per cent. or more should insist generally upon charging full list prices for goods. This fact is becoming recognized in many directions, as in the hardware trade, for example, and the general adoption of lists involving a smaller difference between gross and net prices may be looked for.

At the same time, jobbers and retailers will be obliged to pay somewhat more for rubber shoes. Naturally this will be set down as a result of the recent combination formed in the rubber-shoe manufacturing trade. The advance made by the manufacturers, however, is not due alone to the consolidation. Crude materials cost more today than when last year's price-lists were adopted, and the cost of these materials is a factor over which the rubber-shoe combination can have no control. Had all the shoe companies continued to work separately they probably would not have been able to make and sell shoes this year at the old prices without loss. If the new prices are unreasonably high they will soon be reduced in practice, if not in the published quotations, by the operation of that natural law of trade which makes it impossible for any combination, no matter how powerful, long to maintain a scale of prices for articles in general demand insuring a larger profit than that which the average manufacturer is content to work for.

The only effect of the consolidation in this respect is that the trade will be better systematized than when all the companies were working independently, and there will be less prospect of such competition in prices as would threaten the prosperity of the business. The companies will be aided in maintaining the new scale of prices by the fact that they begin the new year without such stocks of manufactured goods as they had on hand twelve months ago, when, according to Mr. Banigan, the surplus amounted to three months' production. The partial absence of competition will have the effect, also, of retiring from the market the inferior grades of shoes. Doubtless the goods offered this year will be fully worth all the money asked for them; they will be offered at prices within the ability of the public to pay, and the rates of profit will be ample for all who have a hand in conveying goods from the factory to the consumer.

A New Policy in Our Consular Service.

THE newspaper correspondents at Washington have sent out reports to the effect that a new policy is to be inaugurated by this administration, under which good business qualifications must be possessed by appointees to consular positions. It is not intimated that political reasons will be ignored in the selection of Consuls, but that so far as possible appointments will be made with a view to expanding the trade of the United States with foreign countries. The rule is made, according to these correspondents, with special reference to the Spanish-American republics.

Heretofore the consulates of the United States have been regarded generally as mere sinecures. Appointments have been made most frequently for the purpose of discharging political debts, and sometimes in order to send into exile certain worthless individuals whose continued absence from the United States was deemed to be for the country's good. While without question great advantages have resulted in some cases from intelligent and conscientious work of Consuls, in gathering information of value to our merchants and manufacturers looking for opportunities for increased trade, the average character of the consular reports made in the past has been of such a low grade that our commercial leaders have not yet formed a habit of looking to them for instruction.

In England, on the other hand, and in some continental

countries, the Consuls are looked to regularly for information of value on all subjects bearing upon foreign commerce, and their reports are studied assiduously as emanating from well-qualified commercial agents of the nations which they severally represent.

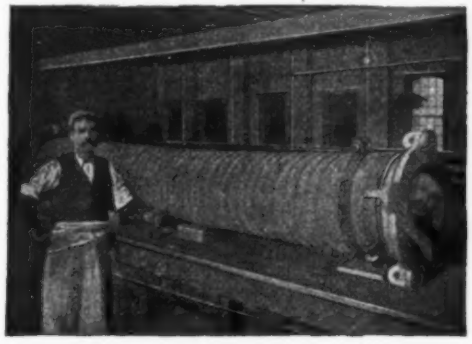
It is to be hoped that these reports from Washington are not without foundation, and that our Government, recognizing the capacity for usefulness of properly-qualified officials, and recognizing also the good work which has already been accomplished by some of the members of the consular service, will in time permit itself to be represented at foreign ports only by men of wide information on our business and industrial conditions, and men whose personal character and energetic efforts will be such as to tend toward the widening of commercial relations between our own country and those with which this service brings us into contact.

It will be remembered that a year or two ago, at the request of The India Rubber World, our Department of State instituted an inquiry through the consular offices into the conditions of the rubber trade throughout the world. The result of this inquiry, although the number of Consuls making creditable reports was not large, was to demonstrate to our people that no actual scarcity of crude rubber could be possible, during our own time at least, and that no alarm need be felt at any pretended efforts in any direction to "corner" the rubber markets. It was also shown that, whereas the forests of Gutta-percha had been ruthlessly destroyed in many localities, there were as yet practically untouched forests of great value. These reports also contained important facts and suggestions with regard to the extent to which India-rubber manufactures from the United States had been introduced abroad, and what was the verdict of the people in different places with regard to our products. These facts are recalled as offering a single illustration of what the consular service may do in supplying information of value to our business interests. While it is not to be expected that our Consuls shall become commercial travelers and common salesmen, yet the opportunity must often exist for them to render a service of value in helping to introduce our manufactured products in foreign markets.

The United States has already made a beginning in the right direction in that for several years past each new administration, upon coming into power, has made a selection of a small number of Consuls who have proved their superior efficiency, and has retained these in place, despite all efforts of new aspirants to supersede them. It would only be in accordance with the avowed policy of the new administration with regard to civil-service reform to extend the application of this practice until every member of the consular service might feel assured of retaining a place in that service so long as his efficiency and merit were demonstrated. There would then be some inducement for young men of business capacity, but without a taste for the usual scramble which attends the getting of political office, and the uncertainty of tenure therein, to prepare themselves for the consular service and to apply for admission to it.

AN IMMENSE DREDGING-HOSE.

THE illustration which accompanies this gives the reader some idea of the size of some of the manufactured products of the New Jersey Car Spring and Dredging Co., Wayne and Brunswick streets and Railroad avenue, Jersey City, N. J. It represents a fifteen-foot section of eighteen-inch (internal diameter) smooth-bore dredging-hose, manufactured in their works. A relative idea of the size of this immense hose may be gained by comparing it with the workman who has lost himself in its capacious depths—a man weighing 160 pounds. The company are especially equipped for doing this heavy class of work, or in similar lines, and no order in this direction can be beyond their capacity; and all work they turn out is of first-class quality. Only the highest quality and heaviest grade of materials can be used, and the spiral coil of iron is over one inch in diameter. The hose is used on mammoth pumps for pumping sand, gravel, mud, etc., generally employed on U. S. Government work in broadening channels, deepening rivers and removing sand-bars that obstruct navigation. The bar at Sandy Hook was removed by this process and with similar hose.



A POINT IN THE SUNDRIES TRADE.

THE reason why large drug-houses can hold the trade in druggists' sundries against the competition of the rubber jobber is thus stated: The country druggist buys a few articles at a time. His orders run after this style: ¼ dozen syringes, ⅙ dozen atomizers, 1 dozen combs, etc., the whole not making a bill of more than $15 or $20. At the same time he has given an order for miscellaneous drugs and the freight on the whole makes a single item, and in the consolidated order a saving. Then there is the single credit, and a single explanation in case of temporary default, as well as a single negotiation. In the larger cities the prominent druggist has learned to go to the manufacturer direct, cutting the feet of the jobber of rubber goods from under him. These reasons why the rubber traveler does not secure a trade apparently belonging to him are so well known that jobbers have almost unanimously retired from the trade in "sundries."

The insulated wiring in the World's Fair buildings is probably as complete as anything of the sort elsewhere. The largest feeder wires are 0000 in size, some of the power circuits being however 1,000,000 circular mils, and some range down so low as No. 8 B. W. G., all rubber-covered for subway and elevated structure work. The smaller gage wires are one-half inch outside diameter. The wires for pump log service are lead covered $\frac{5}{16}$ inch with a rubber insulation of $\frac{1}{4}$ inch.

THE PERUVIAN CORPORATION AND RUBBER.

THE future of Peru is a burning question, not only in that country but in other parts of the world now interested in its affairs. Since the close of the war with Chili, one hears on all sides the lamentation of the people, "Pobre Peru," repeated again and again, as if this were to be a perpetual apology for their indolence and the unfortunate financial condition of the country; no efforts are being made by the people themselves toward recovery.

With Chili still crowding Peru in the south, Ecuador on the north claiming one-half of the best part of her eastern provinces, and Brazil looking covetously on this rich morsel between the two contestants, it would seem that the South American republics do not form an altogether happy family. The search-light of this electric age, in the hands of the newspapers and tourists, shows that the traditional fabulously rich mines of Peru are exhausted, all that are yet productive being in the hands of foreign capitalists. Chili continues to hold possession of the nitrate beds, and is looking wistfully towards what little remains of the guano deposits of the islands. The production of Peruvian bark (*Cinchona*) has been forced to British India by the disastrous methods of collection, as is likely to be the case with her caucho and rubber. The railroads of Peru are unprofitable and expensive. The churches absorb one-third of the scant public revenues, so that there are absolutely no resources except what remain in the forests of eastern Peru. The custom-house income on the Pacific coast is declining alarmingly because of the forced inactivity in business,—the country's credit is bad abroad, and the importations must be reduced, which lessens the income from duties. Cotton, coffee, and sugar are produced more abundantly on the Atlantic side, in the Brazils, and, being closer to the markets of the world, the badly irrigated lands of the Pacific cannot compete with them. Now Peru proposes to give away, in the form of large land grants, all that remains in the natural products of rubber, caucho, etc., in her eastern provinces.

With this condition of business and finances, what prospects are there for the future development of American enterprise in western Peru, outside of the syndicate hereafter mentioned? Will reciprocity treaties with a country that produces the same staple articles as the southern part of the United States,—*i. e.*, cotton and sugar,—facilitate American business in competition with a syndicate having absolute control of the government and markets? Will American capital that now has a safe investment at home take the chances in a money market where 60 per cent. annually is frequently paid to money-lenders, as is the case in Lima?

This brief statement of the present condition of that country is made from the observations of a practised tourist. The government of the republic of Peru, being practically bankrupt, and not able to negotiate a loan in Europe, was forced by her condition to make an arrangement with certain English capitalists known as the Peruvian Corporation, the Baring Brothers of Peru, W. R. Grace being the originator and manager of the scheme. To this syndicate was mortgaged the country's entire resources, comprising railroads, guano, and a certain percentage of her customs for a long term of years, in consideration of the cancellation of the bonds of what is known as the external debt of Peru. The face value of the bonds of 1869, 1870, and 1872 amounted to the enormous sum of £32,953,000. The accrued interest on these bonds to December, 1887, amounted to £21,136,630, making a total of £54,089,630 sterling.

These English capitalists have agreed to assume or cancel this debt on what seems at first glance to be good conditions for Peru, the principal item being that Peru grants to the corporation the lease of all of her unproductive railway lines for a certain number of years, stipulating also that railroad extensions shall be made in each year. Manifestly a government or an individual desiring to borrow money must furnish some security, and this was about all that the general public knew of the transaction; but in addition to this Peru proposes to pay in cash to the corporation out of the future proceeds of the custom-houses, £80,000 annually for thirty-three years, or a concession of 2,000,000 tons of guano, which is worth in England £8 to £10 per ton, provided they can find the guano.

But the most important part of the deal is kept in the background beyond the Andes. The syndicate is also to receive, when the brief extensions to railroads are completed, grants of millions of acres of public land, to be located in eight equal parts, to be located in any place that the syndicate may find most desirable. This most valuable concession may easily be acquired, as by the terms of the contract the extension of the railroads is not specified in any direction, and is limited to less than thirty miles per annum.

The syndicate has, beside, the great privilege of importing free of all duty all the material it may require. Though it looks fair enough on its face, this latter concession amounts in effect to practical free importation for W. R. Grace & Co. of English goods, as it may be interpreted by a few custom-house officers to practically allow the Peruvian Corporation Co., and its very numerous business connections at different points, to import unlimited quantities of material for general use, free of duty, giving to certain so-called American mercantile houses very decided facilities over all competitors. It is better than a reciprocity treaty. It is practically free trade for English productions to the exclusion of American manufactures, which have heretofore been exclusively used on the various railways. The Peruvian Corporation Co., through their different connections, operate mines and sugar-refineries, and control the largest mercantile houses on the coast, at Callao, Lima, and Valparaiso. To this add the fact that they can also obtain a control of the upper Amazon rubber trade and navigation by locating their enormous land grants along the river banks where it is known that the rubber,

caucho, and cocoa abound. Then with subsidized transportation on the affluents of the Amazon, admitting goods free on the Amazon also, in effect, will give the corporation the absolute control of all of Peru's resources. The Limians or coast people know but little of their own rich land in the east, separated as it is by the ranges of Cordilleras or Andes mountains.

To the official this does not seem to be too great a sacrifice for the consideration of the cancellation of £54,000,000 of the public debt of Peru, but a matter of business. The debt was really much less, for the English corporation bought the Peruvian bonds up quietly in England at an average of only 10 per cent. on their face value. But not all of the bonds were thus secured. Some are held in France, and litigation and injunctions have already been inaugurated to compel the government of Peru to cancel the contract. It is said also that there are other preferred bonds of Peru, issued during the war, which it was then agreed should have the first consideration, and the holders of these are beginning to be clamorous. Yet there are many in official life in Lima who defend the transaction, asserting that it will be the salvation of Peru. It is the only issue in their politics, the candidate for the presidency, Generel Caceres, being favorable to the corporation, while his opponent, General Pierola, is an exile at Panama. The mass of the people are hostile to the corporation. They say but little, because in this land it is not always best to express one's opinions too freely, especially in criticism of the government in power.

There is trouble ahead, without doubt. The people of eastern Peru, in that section known as fluvial Amazon, which comprises the navigable portions of the rivers whereon all the rubber, caucho, and cocoa are located, will resist to the extent of revolution this giving away of their country by a few Lima officials, of whom the eastern provinces have a traditional hatred. The Brazilian provinces of Grão Pará and Amazonas, comprising a belt 3000 miles long, bordering the Amazon and its numerous tributaries, equal in extent to all that part of the United States in the Mississippi valley, are now agitating the question of secession from the government at Rio and the establishment of a "Republic of Amazonia." Their wonderful natural products of rubber, cocoa, cotton, sugar, coffee, and hides, on which a large export duty is paid, as well as the revenues from imports, would make them independent and a rich nation. They may desire to annex to their republic all that portion of the Amazon reaching to the Andes, now claimed by Peru. It is said that the natives of eastern Peru, being chronically dissatisfied with the coast people, or the Lima government, will welcome such a change that will put them in the swim with the Amazon provinces to the Atlantic. A very few soldiers could defend the many narrow passes of the Andes against a large army just as long as their ammunition held out, and a single gunboat could blockade the Amazon, so that it is not an impracticable scheme in this land of revolutions.

What is to become of "Pobre Peru?" Already the Limians are compelled to look upon the British flag, rather defiantly floating over the large house and offices of the Peruvian Corporation Co. in their capital city. One can scarcely avoid the feeling that in effect this English syndicate practically controls the political destinies of the present government of Peru from its headquarters to as great an extent as does the power that emanates from the President's palace, but they will scarcely be able to gobble up the rubber lands in eastern Peru without a struggle. The contract, though nearly three years old, is just now beginning to be felt by the people, or to be understood fully. As it becomes effective, it squeezes and pinches in tender spots.

Joseph Orton Kerbey.

COTTON-SEED OIL RUBBER.

THERE has already been published in this journal some account of the discovery by Mr. J. G. Carter, of Savannah, Ga., of a product of cotton-seed oil having qualities supposed to fit it as a substitute for rubber. A writer in the *Manufacturer's Record* (Baltimore) gives some additional facts, which follow:

Few people outside of Savannah are aware that this city possesses a most unique manufacturing establishment, the only one of its kind in the world, where cotton-seed oil is manufactured by a secret process into rubber—not a substitute but *bona fide* rubber; such, at least, some of the best experts have pronounced the product of the factory to be. Nobody knows anything about what is going on inside the factory with the exception of a few very ignorant negroes. Nobody is admitted. The bare facts alone are known that crude cotton-seed oil from the oil-mill, costing about fifty cents a gallon, or about $135 per ton, is carted in five ton lots, and that tons of rubber, worth about $1 per pound, or $2000 per ton, are carted out and shipped to a rubber dealer and manufacturer of Boston.

The writer, Mr. C. B. Warrand, says the discovery was made by accident by an artist of some prominence, who was experimenting with cotton-seed oil in the preparation of varnish for oil paintings, and made rubber instead. The discoverer claims that the process is so simple that he could not obtain a patent for it, and his only protection is in secrecy. He carried on samples of his product to Boston, where a prominent rubber manufacturer recognized its value, bought an interest in the process, and put $30,000 at the use of the discoverer to establish his plant at Savannah for its manufacture. Fifty acres of land were purchased four miles from the city, a high board fence was erected, and the factory built within the inclosure. Here only ignorant negroes are employed, and the secret of the manufacture is secretly guarded. The writer in the *Manufacturer's Record* says that the Savannah process, he thinks, is still crude and very slow, "still it is a fact that a considerable quantity of rubber has been produced and shipped." In case this product should prove of value, it can be made very cheaply.

RUBBER-TREE CULTURE IN MEXICO.

By the Mexican Minister at Washington.

AMONG the bulletins of the Mexican Agricultural Society is one devoted to the importance of the cultivation of India-rubber as a possible source of great wealth to that country, prepared by Senor Don Matias Romero, at present Minister of Finance in President Diaz's cabinet and Minister for the Mexican Republic at the city of Washington. THE INDIA RUBBER WORLD contained last year a contribution from Minister Romero on this subject, and an abstract of the bulletin above referred to is now presented as supplementing that contribution. In dealing with the subject the writer disclaimed any desire to be regarded as an authority in agriculture, botany, or chemistry, but his belief in the utility of rubber-culture in affording a new field for great development in Mexico had prompted him to offer something for publication on the subject, in order to attract the public attention to it, even at the risk of including some inaccuracies. Mention is made also of the disadvantage under which one must approach the study of this subject, owing to the lack of authentic books in relation to it. At the time of writing this paper rubber trees had not been cultivated in Mexico, and he was obliged in part to deal with probable calculations rather than completed experiments. The paragraphs which follow are for the greater part in the language of Senor Romero.

I have seen numbers of rubber trees in Soconusco and in the western departments of Guatemala, adjoining Mexico and near the sea, although pretty nearly all are small, the large ones having been cut down, as will be explained hereafter. I saw in the San Carlos farm belonging to Mr. Jerome Manchinelli (Jurisdiction of Tuxtla, Chico) three trees which the owner found already grown on the land when he first occupied it, in 1841. They are prodigiously large; I measured the trunk of one of them and found that it was two meters in diameter; the circle shaded by the foliage had a diameter of at least twenty or twenty-five meters; the branches of the trees were also very large; the leaves smaller than those of the young trees, and of an entirely different shape. Mr. Manchinelli had never tapped them and did not, therefore, know how much juice each one could yield. The trunk of a Soconusco rubber tree is of a white wood, very soft, and with many large pores, easily perceptible to the eye.

Rubber has not been heretofore, nor is it yet, the product of a cultivated tree. All over the American continent, wherever rubber has been extracted, it has been from wild trees. Such extraction has always been made at the expense of the tree, either by cutting it down,—because the immediate production is thus greater,—or by the frequency with which the juice is drawn, or the bad system followed therefor, which damages the trunk of the tree and kills it. The punishment imposed in some parts, as in Honduras, where a fine of $50 is levied for the destruction of each rubber tree in the Government lands, is not enough to prevent this abuse. The natural conclusion is, therefore, that if very large plantations are not soon started, the product will diminish. As it is not likely that great rubber plantations will be established, on account of the enterprise being new and somewhat venturesome, the result will be that production in the present rubber districts will diminish in proportion to the increase in the demand.

It is a well-known principle that the value of merchandise depends on one hand upon the demand and on the other upon the production. The price of rubber has increased fourfold in Soconusco in less than ten years; in 1863 it was sold to the exporters at eight cents a pound, the exporter having to pay the freight to the port, shipping, etc. Rubber is an article which, even supposing it should not go up, but remain stationary, or even come down to 50 cents a pound, would still yield, as will be shown hereafter, fabulous profits.

The great profits possible from rubber can be made apparent by supposing that there is a plantation, say of 100,000 trees. They would yield, after the sixth or seventh year, taking as a basis the small annual production of six pounds of milk per tree, and taking into consideration the considerable loss experienced by the rubber by evaporation. According to the analysis of Professor Faraday, the milk contains 44 per cent. of rubber, the rest being made up of different substances. Suppose then that these should evaporate; in every hundred parts of milk there would remain 44 per cent. of rubber. This induction is in accordance with the opinion of Dr. Ure, who states, in his "Dictionary of Arts, Manufactures, and Mines," that milk being converted into rubber loses 55 per cent.; if we make the reduction on the basis of the pounds of milk which each tree would yield per year there would be a product of 2½ pounds of rubber per tree or a profit of $1.25 per tree, if the price of rubber should be only 50 cents per pound. In this case the plantation would give a profit of $125,000 a year. Suppose that the calculation of a product of six pounds per tree should be too great, and that this should come down to one-half, one-third, or one-fourth, the product of a plantation would yet be respectively $60,000, $40,000, and $30,000, in the second case, with the price of rubber at 50 cents per pound.

It must be remarked that the price of 60 cents per pound is now the average in foreign markets; taking into account the shipping, commission, freight, insurance, and other expenses, including the profit to the exporter, all of which may be reckoned at 30 per cent. of said price, this would be reduced to 42 cents at the place of production. As the price of a plantation of 100,000 trees would not be likely to exceed $10,000, if it is made in that part of the State of Chiapas which is best adapted for it, the profit to be derived therefrom would be truly fabulous. It must be considered besides that the product of each tree would increase every year.

For the purpose of showing the grounds upon which rest the above estimates, and furnishing some general basis which may serve any person wishing to embark in this enterprise, we will consider what are the proper conditions for a plantation. The following points will have to be carefully inquired into :

First. What is the best climate and the most suitable land for the India-rubber tree ?

Second. Which is the best way of starting a plantation,—by the seed, by nursery, or by propping up the young trees ?

Third. Must the plantation be made in the shade or in the sun ?

Fourth. How far apart must the trees be from each other, so that the land will not be wasted or the growth of the trees interfered with ?

Fifth. What care does the rubber tree require before it yields any gum ?

Sixth. What time elapses between the planting of the tree and the beginning of production ?

Seventh. What quantity of rubber can a tree yield annually ?

Eighth. What is the best way of collecting rubber without destroying the tree ?

It is not possible, unfortunately, to answer each one of the preceding points in a conclusive manner. Fixed principles proved by experiments can be set down in regard to some of them, and in regard to others we have to accept conclusions, which are, in my opinion, worthy of attention.

As the province of Pará, Brazil, produces the best rubber in the world, which commands, therefore, the highest price in the market, I thought the Pará rubber would be the best to plant, and I therefore addressed, during my stay at Tapachula, a letter to the then United States Consul at Pará, asking him for detailed information covering pretty much the same points as above mentioned. The answer was received by me in the City of Mexico. For the present it is enough for me to insert here the following paragraph from a communication addressed by the United States Consul at Pará (Mr. James B. Bond) to his government, and published in one of the annual reports on the commercial relations between the United States and foreign nations :

"India-rubber is not a product of cultivation : it is extracted from a forest tree, and no restriction is placed by the Government on those who resort to the public dominion to obtain it. It is said that the forests nearest to purchasing markets are being exhausted by trees being killed, or yielding less milk from the frequent tapping, but the producing area is so vast, and means of access to remote points are so rapidly increasing, that we do not look for any immediate falling-off in the supply ; on the contrary, the production will probably steadily increase for years to come."

From the investigation I have earnestly made it appears that only very recently has rubber commenced to be cultivated ; the experiments which I know have been made are on a very small scale yet, and of a too recent date to be of any use for the purpose of this work. The principal plantations I know of are the Zanjon Seco, in the department of Soconusco, made by Mr. Jose Maria Chacon ; that of San Isidro, belonging to Mr. William Nelson, situated in the jurisdiction of Mazatenango, department of Suchitepeque, Guatemala, where the rubber trees shade the coffee and cocoa trees ; and that of the Hatillo, owned by a company in the State of Vera Cruz. I have been told that besides in Nicaragua and Honduras some plantations have also been started as an experiment ; the main one being that of Dr. Gauffrau in the Bay of Realejo, near the port of Corinto, in the first of the two republics mentioned.

CLIMATE AND MOST SUITABLE LAND FOR RUBBER.

The fact that rubber has not been heretofore the product of a cultivated tree need not prevent us from inquiring as to the climate and land best adapted to the development of this tree. The best climate is the warmest, and the most suitable land the dampest and nearest to the sea-shore or river margins. These conditions are always found wherever there are any rubber trees. The Pará rubber is found in a level plain from six to twelve leagues wide, ending on the Pacific coast, and gradually and imperceptibly ascending to the foot of the chain of mountains, where the grade is more pronounced, although always gradual. This level plain is cut into by several rivers which run down from the mountains into the sea. The climate is warmer on the lowest part of this land than on that which is higher above the level of the sea. It is remarkable what a large number of rubber trees, yet young, are to be seen in the forest of this plain, the old ones having been torn down for the purpose of gathering the juice. The number of the former increases very remarkably the nearer one gets to the sea, and diminishes in the same proportion as one leaves the coast towards the mountains. Even at the foot of the mountains and at an elevation of 2500 feet above the level of the sea, at places suitable for coffee-culture, some rubber trees will still be seen, but they are very few.

In the neighborhood of Soconusco alone there is enough land to plant hundreds of millions of rubber trees, and I think that as good a soil for that purpose can be found in many other points, both on the Pacific and on the Atlantic coasts. The plantations should always be on the lowest land and in damp climate as near as possible to the sea-shore or river margins. The temperature of the Soconusco land most thickly covered with rubber trees is 28° to 30° C., or 82° to 86° F. It would be proper in any case to make the plantation where the wild rubber trees mostly abound, as the existence of these affords the best proof that the land and climate are favorable to the development of the tree.

Dr. Ure asserts that Asiatic rubber (*Ficus elastica*) grows at a great elevation above the sea. Rubber has, besides, the great advantage of needing very little care for its culture, a circumstance which makes it possible to grow it on a large scale on our coasts, which are generally very thinly settled.

WAY OF MAKING THE PLANTATION.

It must be observed, in regard to the best way of making a rubber plantation, that as the tree is not at all delicate,

the saving in cost and time should above all be consulted. If the land should be in the forest, the clearing of this is the first operation to be undertaken in case it is decided that the trees should be in the sun. If the shade is preferred, then the trees already grown in the forest will afford the best and cheapest shade. The land once cleared, the trees can be planted, either by putting in the seed, or by transplanting the young trees from the nursery or the forest. The seed-planting and the nursery would undoubtedly be the best, but it is, at the same time, the dearest and the longest. It is the dearest, as the cost of the planting is double, first upon starting the nursery, and second upon transplanting the trees from the nursery to the field; longer, because no use can be made of the trees more or less grown to be found in the forest, or of the more rapid growth to be obtained by propping them up. Wherever there are trees already grown it is preferable, for the sake of economy, to transplant these. If there are any old trees then the propping system must be used. Where there are neither the one nor the other, but seed, the latter must be resorted to.

While at Tapacula I made an experiment, in company with Don Sebastian Escobar, a practical farmer thoroughly acquainted with the country and very enthusiastic over the progress of agriculture. The trial was made on the village commons occupied by him with a view to seeing if the transplanting could be effected by pulling the young trees off of the ground, with or without any earth around the roots, as the operation would be quicker or cheaper in the latter than in the former case. We found there about sixty young rubber trees measuring from 8 decimeters to 1½ meters in height. Some of these we pulled out of the ground; others we took out, disturbing as little as possible the earth around the roots, and transplanted them at a distance of two yards apart. We made this operation first in the shade, with some of the young trees, and then in the sun with the others. We noticed, a short time after finishing our work, that the leaves of the trees began to wither. In the afternoon of that day they seemed to be dead; the next day they were dried up, and shortly after they fell off, the remaining branches presenting a very unpromising aspect. Eight days later they all commenced to take root, the green leaves grew out and not one of the trees was lost. This shows the excellence of the trees. The land where this trial was made is not well adapted to rubber, as it is higher than that nearer the sea-coast. The easiest and most economical way would be to plant simultaneously some plant or fruit of rapid growth, adapted to the land.

The land once cleared, the whole Soconusco coast abounds in great trees of colossal size and fine woods which could be sold at a fair profit, and the land prepared for cotton, which generally grows very well on soil adapted to rubber, both of which could be planted at convenient distances, or young rubber trees could be transplanted. After harvesting the cotton, the rubber trees would remain without any cost, as all the expenses defrayed would be for the cotton and nothing more. The operation could be renewed the next year, and the rubber plantation could thus be increased without serious effort. Another very economical way of making the plantation would be to plant rubber trees as shade for the cocoa or coffee trees. I understand that this operation has been tried successfully in some places. The cost of a rubber plantation would not, then, exceed in any case that of the coffee or cocoa; but the rubber would not have been planted in the most suitable land for its development and large yield, as the climate and land proper for cocoa and coffee are not the best for rubber. It is to be remarked that enough seed and trees for establishing large plantations are found in Soconusco.

RUBBER TREES SHOULD BE PLANTED IN THE SUN.

As the rubber tree heretofore wild is found in the forests of very fertile lands, where the vegetation is exuberant and always shaded by much taller trees, the general opinion of farmers familiar with such places is that it needs shade to grow, like coffee. Observation shows, however, that such an opinion is not accurate. The great difference between the trees grown in the sun and in the shade cannot escape the most superficial observer. The latter are seen to have few leaves of a stunted growth and sickly color, while the former have a thicker foliage, a more lively color, and much fresher appearance. The best agriculturists of Soconusco, who formerly entertained the belief that the rubber tree needs shade to grow, admitted before I left that department that it thrives better in the sun than in the shade. This was my most firm opinion shortly after.

I think proper, however, to quote here what Mr. Jose M. Chacon, who established the plantation at Zanjon Seco, told me on this point. The trees planted in the sun grow much quicker than if planted in the shade, and yield a larger quantity of milk; but the heat of the sun dries up soon the necessary dampness. He thinks that a tree planted in the sun would only yield milk for two or three years, at the end of which it would die from lack of the necessary dampness, just as it happens with the coffee tree, which, although it grows quicker and yields more when exposed to the sun, lasts a short time. I express with great diffidence the opinion that the reason why some plants need shade to thrive is because shade serves to temper the heat of the sun. I have noticed that coffee needs less shade in proportion to the temperature of the place where it is planted, and it thrives better without any shade at points where the climate is more temperate. As the rubber tree requires higher temperature, it seems to me the more sun it has the better it will thrive. The dampness of the land would remain after the tree attains a certain development, as their branches would intertwine with each other and give a shade which would prevent the rapid evaporation from the ground.

The short time I stayed at Itapachula did not allow me to notice any difference between the growth and freshness of the young trees transplanted in the sun and those in the shade. The simple fact that not one of those planted in the sun perished is, in my opinion, sufficient proof that rubber requires the sun and that it should be planted without any shade.

THE DISTANCE APART AT WHICH TREES SHOULD BE PLANTED.

The distance at which rubber trees should be planted

from each other is a question of no small importance. If through a mistaken economy the planting should be made closer than is proper, the plants would be in the way of each other and necessarily of stunted growth ; while if they are planted further apart than is necessary the land is wasted and the cost and care of culture greatly increased, without considering the expenses to be incurred in fencing, watching, and other items required when the plantation has been established. The results of the distances apart are to be seen in coffee and sugar-cane ; it is seen on the same land that the product of the coffee field planted three yards apart is double that of one planted at a yard and a half or two yards apart. The most general opinion among the Soconusco agriculturists is that a distance of two or two and a half yards apart all around is all that is required. It seems to me that the distance ought to be much greater. If coffee, a plant which seldom attains more than three or four meters in height, and whose foliage reaches at the most a diameter of three meters, needs wide planting in order to yield well, the planting of rubber, in my opinion, should not be made at less than five yards apart, a distance scarcely enough for trees which get to be more than thirty years old. The trunks of those of that age which are to be seen in Mr. Manchinelli's farm measure, as I have already said, two meters in diameter, while the foliage has a diameter of twenty to twenty-five meters.

CARE REQUIRED BY THE RUBBER TREE.

The hardiness of the rubber tree greatly simplifies its culture and makes it proportionally economical. On the low, hot, and damp lands where rubber thrives, the fertility is so great that the care consists, more than anything else, in fighting against vegetation which might retard or stunt its growth. Rubber has the great advantage of overcoming all weeds and any other light vegetation, and does not, therefore, require the heavy expense of frequent weeding. A tree which, unaided at all by man, can grow in a forest thickly covered with reeds, brambles, and other plants, all of which it overcomes, can certainly vanquish the latter, which will not grow more rapidly than the tree. A rubber plantation weeded only once after planting will surely become developed on the low and rich land on the coast, even without this indispensable requirement ; but its growth would, in that case, be slower, as the weeds would share the fertility of the soil ; it would, therefore, be more economical to weed the trees once or twice a year, according to the quickness of growth of the same and the resources of the planter. The number of weedings would diminish in proportion to the growth of the trees, as the foliage of the tree keeps covering a larger surface of land, and the larger the surface not exposed to the sun the less will be the strength exerted by the vegetation of the weeds. Under this point of view it is far more advantageous to plant rubber trees in the shade, as it requires a smaller number of weedings.

TIME REQUIRED FOR THE YIELDING OF RUBBER.

It is impossible to state accurately how long a time a rubber tree requires to produce milk, a very essential point, since if it would need fifteen or twenty years, there would not be any inducement to embark in this business, while the contrary would be the case if it only required five or six years. Six years is a period relatively short in life of man, which is the time needed by coffee and cocoa to bear any fruit. I may assert that if it was certain that five or six years is all the time required for the tree to begin producing, the number of plantations would greatly increase. Casual observers of the rubber-tree regions believe that the tree needs from twelve to twenty years for its development. More practical and intelligent persons set a shorter period, and some, as Mr. Chacon, for instance, go so far as to reduce the time to five years. After hearing the opinions of practical husbandmen I am inclined to believe that six years, reckoned from the day the seed is planted, is necessary for the tree to begin yielding, on the best land for its development. During my stay in Soconusco I found rubber trees the age of which could be ascertained. There were trees six or eight yards in height, having trunks measuring six or eight inches in diameter, which were three or four years old. This seemed to me conclusive proof that a tree six years old would be developed sufficiently to give some product without any injury. Practical persons in the State of Vera Cruz have assured me that on the Vera Cruz coast, on the gulf, six years is considered sufficient for the development of the rubber tree.

QUANTITY OF RUBBER PRODUCED BY A TREE.

Some practical agriculturists believe that the rubber can be drawn every two months without damaging the trees, yielding six pounds at every operation, which would give a product of 36 pounds a year. Others are of the opinion that it is not prudent to have more than one tapping annually, producing only 6 pounds. The reports of the laborers who have for the last ten years tapped the trees in Soconusco, and destroyed the large ones, are not to be relied upon, as in the first place the trees they tapped were quite old, many of them being secular trees, and in the second place they cut them down to draw the rubber. Their reports alluded, besides, to measures of capacity and not of weight. They first gather the rubber in vessels (jecaras), pouring it afterwards into some kind of large pitcher. According to their reports, however, a tree large enough to be six years old will yield a quantity of rubber not less than six pounds.

MANNER OF SECURING THE RUBBER.

A point very important to the success of a plantation is the method of extracting the juice from the tree. A very primitive process is used in Soconusco, which wastes the milk, renders what remains impure, and destroys the tree. They commence by cutting the tree down, after which they make several incisions with a common *machete* around the tree, about nine inches apart ; then they put some leaves below the incision to catch the milk that flows therefrom. The milk is afterwards taken to the *jecaras* and then to the pitchers. Less milk is obtained, it seems to me, by this ruinous system than would be secured if the tree was not cut down. When the tree is not cut down they make only one or two incisions, as high

as a man can reach, and it is then more difficult to gather the milk with the imperfect process of the leaves. This causes the milk to mix with dirt, dry leaves, small insects, and other substances, which remain afterwards in the rubber, thus discrediting the article and reducing its price.

Thinking that in Brazil a more improved process for drawing the milk from the tree was used, I asked the United States Consul at Pará for information on this point. The answer that he gave me will be found hereafter. It is plain that in order to properly draw the milk from the tree a more suitable instrument than the *machete* is required, and a more proper receptacle than the leaves used in Soconusco and the clay in Brazil to gather the milk from the tree. I think that these improved instruments are not yet made, though they will most likely be before long, in view of their necessity and of the continual progress made in agricultural methods.

Two things indispensable to prevent the tree from dying on account of the cuts made to draw the milk are, first, that the incision should not go beyond the bark, and second, to make each incision in the bark in such a manner that it may not run into the next cut. It is likewise important that the tapping should not be frequent.

PROBABLE COST OF A RUBBER PLANTATION.

It must be remarked that the data mentioned hereafter has been taken from the present art of agricultural operations in Soconusco, and have been furnished to me by Mr. Sebastian Escobar, of Tapachula, a practical farmer, and well posted on everything relating to agriculture in that department. The cost of the plantation varies according to the proximity of the trees, and depends on whether or not the land is exclusively used for rubber, or is devoted in part to cotton or other crops, as suggested before. Suppose the plantation to consist of 10,000 trees, planted in rows three yards apart each way, 141½ cuerdas of land would be required, giving 87 trees to the cuerda.* If the trees are planted four yards apart 52½ trees could go in a cuerda and 241 cuerdas would be needed for 10,000 trees. If placed at five yards apart 36 trees could go in a cuerda and 10,000 trees in 392½ cuerdas. The cost in each case, including the value of the land would be as follows: Clearing the land at the rate of 50 cents per cuerda, $70.50; planting at the same rate $35.25; five weedings in six years at 25 cents per cuerda, each weeding at $36.25, $176.25; total cost, $285.25 until the plantation is six years old, and ready to yield rubber. If planted at a distance of four yards apart the plantation would cost:

Value of 251 cuerdas or 11⅛ hectares @ 25c. plus the increase above mentioned	$ 5.75
Clearing of the land	125.50
Planting	62.72
Five weedings in six years	313.75
Total	$507.72

If planted at five yards apart the cost would be:

Value of 392½ cuerdas of land, or 17½ hectares, at 25c. per hectare, plus the increase above mentioned	$ 8.76
Clearing the land	196.25
Planting	98.12
Five weedings in six years	490.62
Total	$793.75

The cost of each tree would be, up to six years after planting it, including the value of the land, as follows:

Planted three yards apart it would be a little less than 3c. per tree.
Planted four yards apart it would be a little more than 5c. per tree.
Planted five yards apart it would be a little less than 8c. per tree.

It is to be noticed that the cost is not to be defrayed at once, but gradually, and in six years' time the planting of 100,000 trees would cost respectively $2852.50, if the trees should be three yards apart; $5077.50 if planted four yards apart, and $7937.50 if planted five yards apart. The product of a plantation of 10,000 trees six years after would be as follows: Ten thousand trees at the rate of six pounds of milk each as a minimum, would give 60,000 pounds. These reduced to rubber after having lost through evaporation 56 per cent. would leave 26,400 pounds of rubber, the cost of the production of which is calculated by Mr. Escobar at three cents per pound. The rubber sold at the place of production at 45 cents per pound after the reduction above indicated the 26,400 pounds would produce $11,880. The expense of production at 3 cents per pound, according to Mr. Escobar, would be $792. The first year the profit would be $11,088. If the plantation is of 100,000 trees then the net profit of the first year would be $110,880. When it is taken into account that the product of rubber has been calculated at the minimum of its yield and that every year that elapsed it would necessarily increase until it became three or four times greater than the first year, the great future of this important branch of the public wealth cannot fail to be appreciated.

[The remainder of this paper consists of facts derived from the United States Consul at Pará, and from various publications relative to Asiatic rubber.—THE EDITOR.]

*A cuerda is the unit of superficial measure, in Soconusco, and comprises the land enclosed in a square of 25 *varas* on each side or 625 square *varas*. A vara is a little less than an English yard and for the purpose of this article it could be taken as such.—M. ROMERO.

A DANCER WITH A RUBBER FOOT.

"IT is surprising how nicely a man can walk with a rubber foot," remarked a traveling man, at the Laclede, around whom a group of listeners were sitting. "I attended a ball last week in a country town in Illinois, and was introduced to a gentleman from Ohio, who had for a partner the prettiest lady in the ballroom. During the evening I had occasion to notice this couple, who were conceded to be the most graceful dancers in the hall. In all round dances they were partners, and the most intricate figures were executed with a charming ease and grace, excelled by none except they be teachers of the poetry of motion. Next day, after I had waited upon my customers and gone to the hotel, in came my friend of the night before, walking on a pair of crutches and one leg off at the knee-joint. I was surprised and remarked: 'You certainly are not the gentleman I met last night at the ball?' 'Most assuredly I am, but after dancing all the evening my leg becomes wearied, and to give it a rest I leave my rubber foot at home the next day. I can feel the sensation now as if my toes were cramped by a pair of tight shoes. Otherwise I feel no inconvenience in the loss of my lower limb.'"—*St. Louis Republic.*

THE TIRE INDUSTRY.

WHY A PNEUMATIC TIRE IS FAST.

*By Sterling Elliott.**

FIRST be it understood that the fastest (*i. e.*, the easiest running) wheel would be a wheel perfectly round and having a very narrow and very hard tire, say for instance, a tire 1-8 inch wide, slightly rounded, and made of steel hardened and accurately crowned. This would be the fasted tire, *provided*, we had a track which was *absolutely* level, hard, and smooth for its entire surface.

But as such a track does not at present exist, the above described wheel would be useless. Any deviation from it, however, is made necessary by the condition of roads and tracks as we find them. The *hardest* means of locomotion, *i. e.*, the least economical, considering the expenditure of power for the results attained, is that which is used by all animals, viz.: walking. As man is one of the poorest specimens of the animal kingdom, physically speaking, it seems especially fitting that he should have been first to adopt the bicycle.

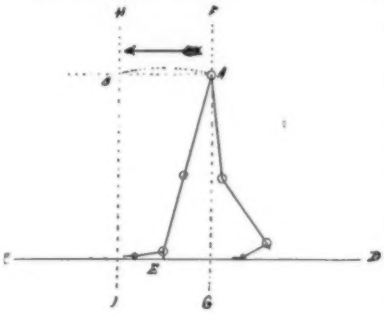


Fig 1

In Figure 1 I have sketched the joints of a pair of human legs. A represents the hip-joint which, in common with the whole outfit, is traveling in the direction of the arrow along the line A B, which is parallel with the ground, C D. One foot is placed forward to the point E, and that leg becomes a support for the body, which is pushed forward by the other foot from the position F G to that of H I, which is one step, the leg having acted as an inverted pendulum upon which the body has been swung over from the point A to B. At the completion of the step the body is no higher than before, and yet the entire weight has been raised above that level as per the dotted line, and this must occur at every step. When the load is carried, as on a wheel, it is not raised at every step, but (if the track be smooth) it is simply moved forward, thus requiring much less muscular force than is needed for walking. If both track and wheel were non-elastic, then each obstacle would cause the wheel and its load to raise enough to pass over it, and some of the disadvantage of walking would meet us in another form; but here the elastic tire comes in. It is found that the smoothest track consists of innumerable small particles or obstacles, perhaps a hundred of them being touched by a single pneumatic tire at the same instant.

The soft surface of the tire permits itself to be indented by these little projections, and instead of the wheel having to lift over the tops of the highest points, its vertical movements are very much modified, and the propelling power is correspondingly relieved.

Figure 2 shows the action of an elastic tire where it is pressed against the ground. As the wheel moves ahead it must distort the tire at the point where it first contacts with the ground (as at A). This requires power to displace and compress the material of which the tire is made, and were it not for a reaction at B, the wheel would run excessively hard. This reaction, or attempt of the elastic material to regain its normal position, is equal to the power required to compress it, less a small amount for friction between the particles of which the tire is composed.

When this compression takes place a small interval of time is required for the rubber, or whatever the tire is composed of, to react. If the wheel be moving forward at a comparatively slow speed, the difference between different degrees of elasticity is not so marked, but as the speed increases there is a greater difference in favor of that tire which has the *quickest acting* elasticity (*i. e.*, the best resiliency), for the reason that the rebound at B comes nearer being equal to the power absorbed in compressing the tire at A.

The superiority of the pneumatic tire is due to the fact that compressed air is the quickest and nearest frictionless of any form of elastic cushion known, and the quickness of its reaction is increased in proportion to the pressure of the air. It is an understanding of this practical side of this theory which prompts the knowing racer to inflate his tires to a high tension.

The theory that has been advanced to the effect that a cushion tire (*i. e.*, a tire using only the elasticity of a mass of rubber) is as fast for a sulky as the pneumatic hardly needs refuting, for the same reasons apply in each case.

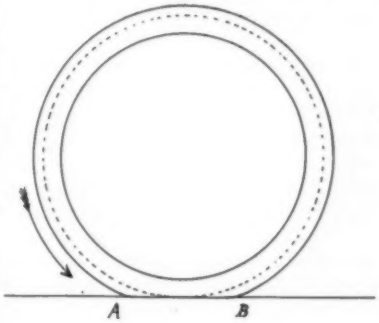


Fig 2

The *diameter* of tire, however, should depend on the nature of the surface over which it is to run. For trotting tracks, which must have a soft surface, a tire of 1 3-4 inch diameter has been found most desirable, but for bicycle tracks, which may be hard and smooth, a tire 1 1-2 inch and even less in diameter may be used with the best results.

If a track were made of hard wood boards set up edgewise and glued together, the surface being accurately

*Reprinted from the *Bicycling World* (Boston), March 17, 1893.

planed and jointed like the surface of a bowling alley, I believe that better time could be made with a narrow steel tire for four reasons: First—there would be practically no compression and reaction; second—the wheel could be made absolutely round and true; third—the wheels could be made lighter; and fourth—the air resistance of the tire could be materially reduced.

Such a track would necessarily have to be protected from the weather and frequently resurfaced, but it would be the fastest in the world for any kind of wheel. Who will build it?

I predict that the pneumatic will remain as it is now, the fastest tire (for tracks as it is practical to make them) until something is discovered that is more elastic than compressed air, which weighs nothing and costs less. And such a discovery, if made, will certainly be a unique addition to the sum of human knowledge.

* * *

FABRICS FOR BICYCLE-TIRES.

THE bicycle trade has begun to make considerable demands upon the manufacturer of cotton duck and other fabrics which are used in the preparation of the pneumatic tire. The business is young,—it might be said hardly two years old,—and while the fabric-manufacturer is taking much pains with it, and doing all he can to send out good material, the demand has not yet risen to such proportions as to overwhelm any of the large concerns in the dry-goods district. Those firms go out frequently and bring in a contract for 1,000,000 of yards of duck, or the like; but when it comes to the bicycle only a half yard is needed to each tire, and it takes a good many wheels to make up a good-sized contract.

At present the best sort of fabric for the tire is unknown. It may be on one of the variety of wheels now on the market, but there is no consensus of opinion, or a crystallization of opinion, which would show which is the best. Bicycle-men are theorizing, studying, experimenting, and letting the youth of the land practise on what they have brought out, and now they are scanning the horizon for some intimation as to what style will be the winner. They know that the "boys" will settle it, and good judges say that six months hence the story of the contest in fabrics for bicycle-tires can be written in an intelligent manner.

In the meantime every bicycle-man has his fancy. These run into all varieties. One firm wants cotton duck, another thin sheeting, another linen wrapping, and so on. Again one will use a strip five inches wide, another wider, and some require it forty-five inches wide. In the latter case the fabric is wrapped round and round. While the duck or drill manufacturer never hesitates to follow specifications, still he believes that one substantial layer is better than many plies, and will wear better. The trouble with linen is that it will not vulcanize without rotting the fabric, an experience learned during the War, and an error into which the bicycle-man tumbled at first.

The weave of the fabric is an all-absorbing subject. To get strength without weight is the question. This branch of the subject has not been settled. If it is woven too close the fabric is likely to be stiff and the result not altogether satisfactory. The subject is a perplexing one, as is evidenced by the fact that one of the largest concerns in the country is constantly changing its specifications, simply "feeling" for the best, and at last accounts it was doing the least boasting of any in the crowd, although it is believed that it is on the road to a greater success than many who appear to be better satisfied.

The cloth-manufacturers so far have not set up any peculiar machinery for the making of the fabrics used by the bicycle-men, but they have made many adaptations. They feel as yet that there is great poverty in any substantial result in obtaining the best, but they believe that this season will evolve such, and from that time on they can go ahead in an intelligent manner and make a fabric which will be standard for the purpose intended.

* * *

PNEUMATIC PUMPS FOR BICYCLES.

MOST cyclists believe that they can better inflate a tire with a big pump than with a little one. That may be true so far; but after a certain amount of air is compressed within the tire—and the resistance in consequence has become greater—it is easier to harden the tire with a pump of small diameter. Metaphorically, it is like gearing down. Given a perfectly constructed air-pump of small internal diameter, it would be possible for a man to compress air in a steel tube until the tube burst. The problem may be thus demonstrated: Does it require great strength to condense air? That depends on the size of the piston in the pump; for the force required increases in proportion to the square of the diameter of the piston. Suppose the area of the piston is one inch, and you have already forced so much air into the tire that its density is double that of common air, the resistance opposed to you will be equal to 15 pounds. (It is not necessary for the purpose of demonstration to consider the pressure requisite to open the non-return valve of the tire.) But if you would have it four times as dense, the resistance will be equal to 60 pounds. Now, take a pump the area of whose piston is only half an inch, and the resistance would be equal to only the fourth part of 60 pounds, because the square of ½ is equal to ¼. Thus, it will be seen that with the same expenditure of physical force the air in a tire may be more compressed with a pump of small diameter than with a pump of larger diameter. Cyclists, then, would do well to bear these facts in mind, remembering particularly that it is possible to inflate a tire much more than necessary when using a pump of small internal diameter, without perceiving an extraordinary resistance. In time, doubtless, a standard for pumps will be set up, but the necessity for a good pressure-indicator is nevertheless becoming more and more apparent, and tire makers might well consider the introduction of a combined valve and pressure-gauge. We do not suppose it would meet with much appreciation at first, so long as riders could put up with the crude method of finger-and-thumb gauging, but the march of improvement should change even that.—*Scottish Cyclist.*

BOILER EXPLOSION CAUSED BY RUBBER.

A BOILER explosion recently occurred from a curious cause. Steam was taken from the side of the dome. In connecting the steam-pipe to the dome, the engineer used a stout rubber gasket, which he trimmed neatly around the outside of the flange. He forgot, however, to cut a hole through it for the steam to pass through. If the full boiler pressure had acted on the blind gasket, it would probably have bulged out, forcing a way for itself; but under the circumstances the effective pressure on the gasket was only the difference between the pressure in this boiler and that in the others. Even then, it hardly seems as though the rubber would be strong enough to allow the pressure to run up to the bursting point, but it was strong enough, for it was afterwards found unbroken; and the boiler blew up and did over $1000 worth of damage.—*Mechanics (London).*

A REMARKABLE BUSINESS MAN.

JOHN W. GIRVIN, the insolvent rubber merchant of San Francisco, was in court yesterday afternoon under an order of examination. He told the attorneys such a story that they at once pronounced him a remarkable business man in his way. He was remarkable in this, that he could go to the banks in San Francisco and secure credit to the amount of about $30,000 on his unsecured notes when he was insolvent. According to Mr. Girvin's story he married his wife in the East in 1884 and then came West, opening up his business in San Francisco in 1885. He took R. J. Wheeler, his father-in-law, in with him as a full partner and neither of the gentlemen had a cent in the business. The capital, $2000, was loaned by Mrs. Girvin, this being a portion of her father's wedding present. The business went along booming, and finally Mrs. Girvin had loaned her husband $26,000 to invest in it. Wheeler was East all the time, and he drew about $2000 during seven years as his profits.

Mr. Girvin drew out about $500 a month for his living expenses. Then he borrowed a large sum of money from the Pacific Bank and invested it in the business. Next he drew this money out of the business and bought a home at Claremont that cost $16,000, which he deeded to his wife two months after the purchase. Then last December he assigned to his wife all the book accounts to secure payment of the $26,000 loaned by her. So at the end of seven years John W. Girvin, who never put a cent in the business, has drawn down about $500 a month right along, bought a $16,000 home, now standing in the name of his wife, and the latter secures an assignment for her $26,000; then, to cap the climax, he fails for $123,000, with very small assets. Substantially such was the story told by the insolvent on the witness stand. While he has not a cent himself, still there is $42,000 in the family that can be accounted for. The lawyers will take another round at the insolvent merchant in a few days. —*San Francisco Chronicle.*

THE Oakland Rubber Co. is in trouble. The company consists of John W. Girvin, an insolvent, and D. D. Hayes. The firm owed John W. Girvin & Co. of San Francisco, $3674 for goods sold. Girvin assigned this, with other claims, to his wife, Viola Ida Girvin, and she at once commenced an attachment suit in the Superior Court against the Oakland Rubber Co. Sheriff McKillican, as receiver of the estate of Girvin, an insolvent, has now filed a complaint in intervention, to prevent the wife from getting the judgment sought. The receiver is plain in his language, and says that if any assignment of the account as alleged was made, it was done with the intent to delay and defraud the creditors of the insolvent, and is void and should be set aside. The receiver says that the goods in the Oakland store are worth $7000, and he wants the creditors' interest in them protected.—*Oakland (Cal.) Tribune.*

THE American Rubber Co. has commenced suit in the Circuit Court againt J. W. Girvin & Co. to recover $20,002.21 for a balance due after an accounting, for goods delivered to Portland, Ore., and other cities. The rubber company has attached several lots in blocks 10 and 28 of the town of Stillwater, property belonging to R. J. Wheeler, a member of the Girvin company, to satisfy the claim.—*St. Paul (Minn.) News.*

A SUIT has been brought by the Boston Belting Co., against J. W. Girvin & Co. for $11,000.26, balance due on account of 20,000 for goods sold between January 1, 1892, and February 3, 1893. The Boston Rubber Co. has sued the same firm for $1952,85 for goods sold and delivered.—*Portland Oregonian.*

DISCOVERIES OF ALEXANDER PARKES.

THE discovery of the vulcanization of rubber, by the use of bi-sulphid of carbon, or the cold-curing process, was made in England, in 1846, by Alexander Parkes, and marked an epoch in the art. Bi-sulphid of carbon is a transparent, colorless liquid, very refractive and dispersive in its power. Its odor is very repulsive. But it will dissolve sulphur, phosphorus, and India-rubber, and is used largely in the vulcanization of the last, and in Gutta-percha manufactures. Parkes then dissolved chlorid or hypochlorid of sulphur in bi-sulphuret of carbon, or in turpentine, and then by immersing the rubber or percha in one or the other for a few minutes, the change was made. He purified Gutta-percha by dissolving it in turpentine or naphtha at a temperature of 150° F. for an hour; the coloring matter then subsided, the solution was decanted, the solvent evaporated, and the Gutta-percha was ready for the vulcanizing process. In his process he accumulated much waste because it could not be worked; this he boiled in a solution of muriate of lime until the pieces could be united together by pressure, when it was washed successively in hot alkaline and clean hot water.

Parkes disclaimed the perfection of his process, and Thomas Hancock, who had a great faculty for "getting there" about the same time some one else did, and bothering annalists ever afterward, immediately picked up the threads of Parke's invention. He immersed cloth, linen, silk, and other fabrics, printed or dyed into the solution of Parkes, and made waterproof garments, employing many ingenious methods to prevent injury to fibrous substances. He made many variations in his method of cold curing, and in his labor was assisted by William Brockedon, with whom he shared the honors of an invention which was to be far reaching in its beneficial effects for all time after.

Parkes did not appear again in the inventive world until 1855, when he made certain preparations of oils for, and solutions used in, waterproofing. He added chlorid of sulphur to linseed or rape-seed oil, making it insoluble in naphtha, or sulphuret of carbon, and thus producing a rubber "substitute." This acid or cold cure, however, was applicable to almost everything, and with "substitute" has been largely used in clothing. It is yet used, with naturally a great many varieties, but in this country other methods have taken its place very largely, with great advantage, it is claimed by our manufacturers.

THE FIRE-HOSE TRADE.

THE fire-hose trade for this year is expected to be very large, the severe winter having proved disastrous to the long lines of hose in constant use. Local dealers in mechanical rubber goods will find that it will pay them to give this subject early attention, and thus be prepared to fill orders for supplying the wants of their own town.

It is understood that the city of Omaha will soon be in the market for 3000 feet of fire-hose. By the way, Omaha has a new city ordinance requiring drummers doing business in that city to take out a license. It seems that the ordinance was intended to reach only "fakers," but it is liable to cause all drummers much trouble. Unless it should be amended so as to exempt commercial travelers, every one going to Omaha is liable to arrest if he has no license. The penalty is a fine of not more than $50, or imprisonment not exceeding thirty days.

Milwaukee, Wis., will be in the market again soon for fire-hose. Orders for city supplies are usually given there through proposals of local dealers.

DEATHS IN THE RUBBER TRADE.

A NOTED figure in Oakland and San Francisco, California, has long been a rubber-stamp manufacturer named Charles A. Klinkner, the founder of the town of Golden Gate. Klinkner's genius showed itself in his odd method of advertising. He drove around in a little covered cart drawn by ponies painted in colors on which were perched two monkeys grotesquely dressed. The rubber-stamp business will be continued by L. H. Moise, who had been associated with Mr. Klinkner for seventeen years. The deceased was a native of Germany, forty years old, and began life as a junk-dealer. He was very successful in business and acquired a comfortable fortune.

* * *

JOHN F. W. DORMAN died at his residence in Baltimore on March 25, after an illness of nearly five months. He was president of the corporation of J. F. W. Dorman & Co., No. 317 East German street, who are large manufacturers of rubber-stamp machinery. Mr. Dorman was born in Kentucky in 1836. He went at an early age to St. Louis, where he was at one time an actor, under the management of the father of Speaker Crisp, of the United States House of Representatives. He took part in the war, was a prisoner at Libby, and located in Baltimore in 1866, when he began in a small way to cut stencils and make rubber stamps. He perfected machinery and appliances of which he was the patentee, and his business grew so largely that in 1883 it was necessary to build a five-story warehouse to accommodate it. Recently an additional five-story warehouse was leased on adjoining property. The business of the firm will be continued as in the past.

CONDITION OF THE CLOTHING TRADE.

THE rubber-clothing men predict a very large trade in mackintoshes this season, and all the important mills in New England are preparing for it as best they can. Generally manufacturers seek for help in June, but this year they began in March to advertise for extra people to make cloths for the trade. Those mills which a year or two ago took on outside lines to make in order to keep their employés busy, and thus retain them, have abandoned all except regular goods. Plain colors will prevail this year,—either blue or black,—and very few others in proportion will be made. There is an even demand for all grades; those at $1.50 per yard selling as well as those at 8½ cents. But little is now thought of the effect of the tariff on goods, the opinion gaining ground that no new duties can be made up to go into effect before July 1, 1894. There are so many conflicting interests to reconcile in the formation of a tariff schedule as to make it a slow process. Even the Democratic Congressman can hardly ignore the importunities of a Republican constituent who has large interests at stake, and representives will be disposed to favor products of their respective communities.

ATTACK ON A RUBBER FOREMAN.

JEREMIAH KEATING, assistant foreman of the grinding room at the Boston Rubber Shoe Co.'s factory, Edgeworth, was assaulted by an employé named Haggerty, about seventeen years of age, this afternoon. There was some discussion over an order given by Mr. Keating, and Haggerty struck him on the back with an iron bar. For this he was discharged by Foreman Hayes. Haggerty returned shortly afterward, and seizing a long bladed knife, made a lunge at Mr. Keating. The latter drew back and the thrust missed him, but he received a gash behind the left ear, narrowly missing the jugular vein. He was taken to a doctor and the wound dressed. No arrests had been made to-night.—*Boston Globe Malden Despatch, March 15.*

THE IMPROVED STRATTON STEAM SEPARATOR.

AMONG the many devices which enter into the equipment of the perfect steam-power plant, none contributes more to the economical and satisfactory results obtained than a tthoroughly reliable steam-separator. That the maximum of economy in the use of steam can only be obtained when it is furnished to engine in a perfectly dry state, is a fact, the truth of which has been demonstrated beyond question. We know of no apparatus for separating the water, oil and dirt from steam so that it may be delivered free of foreign substances to engine, more deserving of the popularity it has attained than the Stratton Steam Separator, shown in the engravings.

FIGURE 1.

This device is now manufactured by the Goubert Manufacturing Co., No. 32 Cortlandt street, New York. It has won for itself a high place in the estimation of engineers throughout the country that could only be obtained by real and undoubted merit. The Stratton separator is based on the principle that if a rotative motion is imparted to the steam as it enters the separator, all the liquid particles it may contain, being heavier than the steam, acquire centrifugal force and are projected to the outside of the current. Practical results have, it is claimed, proved this theory to be correct, but in some cases where high pressures of steam are used, it was found that the water gauge on the side of the separator would show "full of water," while steam would blow out of the drain pipe at the bottom. While this clearly proves the centrifugal principle of the separator, the force was so great as to hold about the interior walls of chamber a volume of water whirling so rapidly as to be hollow in the center, allowing steam to blow out of the drain pipe.

FIGURE 2.

To meet this slight objection, the manufacturers have patented an improvement as shown in the accompanying cuts and briefly described as being centrifugal steam-separator provided with wings or plates projecting from the interior surface of the well chamber at an acute angle therewith and to the course of steam or water thus, breaking the whirling body of water and allowing it to settle quietly in bottom of separator chamber from whence it can be drained. Figure 2 shows a horizontal view of the separator in section, and Figure 1, a cross-section of the water chamber showing wings or plates placed at an acute angle to current of the water as described. The Stratton Separator has gained greatly by the improvement as explained and illustrated above, and is to-day, the makers believe, the best and most efficient apparatus yet devised for extracting all entrained water so that steam absolutely dry may be supplied to the engine.

A RECENT work on chemical technology claims that there is no process for recovering rubber, which proves that the writer did not know what he was talking about.

BRIEF ABSTRACTS OF RUBBER PATENTS.

AMONG recent patents issued by the United States Patent Office, embodying applications of India-rubber or Gutta-percha to a greater or less extent, have been the following. It is not practicable here to do more than to note the use of rubber in each case, with sufficient detail to enable those who are interested to decide whether or not to look into any particular patent more fully:

TIRES.

No. 492,436.—Hub-Protector. Edgar F. Ryder, Providence, R. I., assignor to the Atlantic Manufacturing Co., same place.

The combination of the elastic tube, and a closed end adapted to be held by air-suction upon the hub of a wheel.

No. 492,510.—Shoe for Cycle-Wheels. Herbert Gregory, New York city.

In a flexible ice-shoe or belt, arranged to inclose bicycle-tire, the combination of a flexible belt with the short spikes, said spikes embedded between the layers of said belt and arranged to prevent the wheel from slipping.

No. 492,580.—Pneumatic Tire. Charles E. Hadley, Chicopee, Mass., assignor to the Overman Wheel Co., Hartford, Conn.

The combination with a pneumatic tire having an inflated tube, of one or more spring-recovered compressors located adjacent thereto, and a compression-collar for engaging with the free ends of the said compressor or compressors for contracting the tube to close it.

No. 493,160.—Rubber Tire. William Golding, Manchester, England, assignor to Charles Macintosh & Co., Limited, same place.

The combination with a metallic wheel rim having lateral recesses formed by reflexing the edges, of an inflatable tire having corresponding lateral flanges which are detachably inserted into such recesses, and are secured therein by the pressure of the contained compressed air when the tire is inflated. The herein described series of processes for constructing or building up the said inflatable tire with lateral projections of flanges upon it (1) by shaping the tire on the mandrel, (2) by folding down the sides or edges, and (3) by tightly inclosing both mandrel and tire within a three-part mold during vulcanization.

No. 493,488.—Pneumatic Tire. Charles E. Duryea, Springfield, Mass.

The combination with a rim having at its side an annular recess with lips thereof turned toward each other to form a contracted orifice for said recess, of an inflatable air-ring encircling and seated on said rim, a retaining cover, and the tread cover or shoe having their edge portions at one side secured to one side of the rim, and the shoe having its other edge portion extending into said recess and lying against one of said lips, and the said retaining cover having its other edge portion extending into said rim-recess and connected to a strip which is located therein to lie against the other of said lips and against the adjacent edge portion of the shoe.

No. 493,554.—Pneumatic Tire. Charles M. Lungren, Bayonne, N. J.

In a pneumatic tire, the combination of a band or strip of flexible material provided with enlarged edges, a wheel rim provided with inwardly extending channels at its edges, said channels being narrower at the mouth than at the interior, and removable retaining rings adapted to fit into the rim channels and bind the enlarged edges of the tire strip in place.

No. 493,650.—Bicycle-Tire. Edgar F. Ryder, Providence, R. I., assignor, by direct and mesne assignments, to the Atlantic Manufacturing Co., same place.

The improved and elastic tire for bicycles and other vehicles herein described, consisting of the enlarged portion, elliptical in cross section, and having a longitudinal bore and overhanging sides in combination with a solid longitudinal rib at one side upon a line in continuation of the minor transverse axis of the enlarded portion and adapted to fit within the concave periphery of the wheel rim.

No. 493,675.—Pneumatic Tire. Edward Barrett, New York city, assignor to himself and George R. Bidwell, same place.

In a pneumatic tire for cycles, the combination with an inner inflatable tube and a wheel rim of an outer tubular covering or tire divided around its inner face into inner and outer pairs of flaps formed of rubber, with the outer covering and having the strips of fabric of the outer covering extended within and molded into said flaps, said flaps being adapted to be opened to receive the wheel rim between them and narrow strips of fabric along the meeting edges of the outer flaps, and eyelets in the outer flaps, and means for engaging the eyelets and securing the tire upon the rim.

No. 494,003.—Pneumatic Tire. Foster H. Irons, Toledo, Ohio.

The herein-described method of forming pneumatic tires, which consist in molding the rubber tubes of the tire in a spiral shape, and then straightening the tubes out and forming them into a tire.

No. 494,088.—Valve for Pneumatic Tires. Asahel M. Shurtleff, Boston, Mass., assignor to Codman & Shurtleff, same place.

The internally-threaded valve case provided with a corner-like annular seat as described, combined with a tapering faced valve having a portion of its stem adjacent thereto threaded externally to engage the threads of the valve-case, rotation of the valve in said case moving it towards or away from the seat.

No. 494,089.—Valve for Pneumatic Tires. Asahel M. Shurtleff, Boston, Mass., assignor to Codman & Shurtleff, same place.

The combination with a valve casing containing a valve seat, of a hollow valve movable longitudinally within the casing to co-operate with said valve seat, and formed at its outer end to constitute one member of a detachable coupling, the outer member of which is on the inflated tube.

MECHANICAL GOODS.

No. 492,855.—Hose-Clamp. Frank T. Weldaw, Syracuse, N. Y., assignor to Warren S. Purington and James B. Casterlin, same place.

A hose-clamp, comprising a wire, bent to form a looped body, and eyes at its extreme ends formed by coiling the wire, the sides of said body diverging from the eyes toward each other, and adapted to be wrapped clear round the hose, one end being passed through the body in wrapping it about the hose, said eyes being bent outward, substantially parallel to each other, and a bolt inserted through said eyes and means for securing it.

No. 493,312.—Lawn-Sprinkler. George H. Thoma, Three Rivers, Mich.

The combination of a hose-nozzle, a stock detachably attached thereto, said stock being provided with a point at the free end beyond the end of the nozzle, and a water deflecting-plate hinged to said stock between said point and the end of the nozzle, said plate being provided with a spring having a series of holes adapted to adjustably engage with said point.

No. 493,316.—Manufacture of Hose-Coupling. Emory L. Townsend, Los Angeles, Cal.

A hose-coupling comprising a tubular male hose coupling thimble formed of a blank consisting of a sheet of bendable metal cut into shape with one straight side; ends at right angles therewith; and the other side having two inclined wings bent to form the cam flanges.

No. 492,047.—Hose-Patch. John D. Otis and James M. Harper, Peoria, Ill., said Otis assignor to said Harper.

In a hose-coupling, having two semi-cylindrical circles hinged together, the cogged tongue hinged to one of the sections, and a worm screw carried in a suitable frame work upon the other section, provided with suitable turning means and, de-

signed to operate connection with the cogged tongue, for the purpose of drawing the two sections together or expanding them.

DRUGGIST'S SUNDRIES.

No. 490,493.—Device for Administering Medicine. Franklin H. Olmstead, Yokohama, Japan.

In devices for administering medicines, the combination with the elastic hand bulb, of the glass, or transparent liquid medicine receiver having a flattened and concave surface on its under side.

No. 490,565.—Device for Handling Fermented Liquids. Frederick C. C. Isböy and Henrik P. Linderoth, Copenhagen, Denmark.

An improved device for impregnating liquor with carbonate acid gas, consisting of a high-pressure chamber connecting with a low pressure chamber by means of a passage; a valve within said passage and secured to one side of the diaphragm; an elastic sphere secured to the opposite side of the diaphragm; and a hood or similar device adjacent to the opposite side of the sphere; and an adjusting screw for varying the pressure on the aforesaid elastic sphere.

No. 490,891.—Electric Warming-Bottle. Thomas Ahearn, Ottawa, Canada.

In an electric warming-bottle, the combination of a bottle or bag of flexible waterproof material, a long neck with mouth therein, a resistance coil within said bottle and the leads extending through said neck.

No. 492,102.—Penholder. George Pellinger, Akron, Ohio, assignor to the Goodrich Hard Rubber Co., same place.

In a penholder, the combination with the stem and its cylindrical portion, having a groove, and the sleeve arranged to fit said cylindrical portion and having an internal groove opposite the groove of said stem, of the cut ring adapted to enter and rest in said grooves.

No. 493,208.—Vaginal Syringe. Arthur B. Cruickshank, San Francisco, Cal., assignor of one-half to Kampfe Brothers, New York city.

The combination, with a compressible bulb having two compartments, a valve at the end of each compartment, the valves of one compartment opening in one direction and the valves of the other compartment opening in the opposite direction, a nozzle having two bores, which bores are connected at one end of said bulb with the two compartments of the bulb and tubes connected at the opposite end of the bulb with the two compartments.

No. 493,591.—Syringe. Charles A. Kenner, Utica, assignor of one-half to William M. Widener, York, Nebr.

In a vaginal syringe, the speculum tube closed at one end, and provided at said end with a central perforation and at one side thereof with a guide notch, a sliding syringe tube working through said central perforation and provided with a longitudinally disposed guide rib engaging said guide notch, an attachment knob at its outer end and a plunger head at its other end within the speculum tube, and a sponge removably secured to said plunger head.

No. 493,701.—Bottle-Stopper. George H. Gillette, New York city.

A bottle-stopper consisting in a core having a bulbous lower extremity, a reduced neck, and an India-rubber elastic disk attached to the core below the bulb, and means for limiting the insertion of the stopper whereby at its extreme entrance said disk is interposed with upturned margins between the bulb and the throat of the bottle.

No. 494,048. Syringe. Joshua M. Wardell, Cadillac, Mich.

In a syringe, the combination of the tapered body, having a water-inlet passage, and a central passage which is screw-threaded at its rear end, enlarged in its middle portion, and flared at its front end, and also provided with a series of parallel grooves, and the detachable outlet tube having its front end flared and provided with a screw-thread adapted to engage the thread of said passage.

DENTAL SUPPLIES.

No. 492,434.—Dental Apparatus. Alvan S. Richmond, New York city, assignor to John S. Huyler, same place.

A portable dental instrument comprising a force bulb, a resisting chamber, a tube connected to the latter, a handle provided with a regulating valve, the cylinders detachably connected, the detachable tube for the cylinder, and the sectional delivery tube connected to the heater.

CLOTHING.

No 492,643.—Waterproof Suit. Otto Van Oostrum, Portland, Oreg.

A waterproof suit, composed of a coat or body garment having an opening at the top and fastening flaps for closing the same, sleeves having elastic bands at the wrists, trouser portion and boots hermetically attached to the trousers.

STATIONER'S SUNDRIES.

No. 490,390.—Flexible Ruler. George W. Kraft, Dresden, Germany, assignor to Lingner & Kraft, same place.

A flexible ruler capable of adapting itself to different forms of surfaces to be ruled, composed of two elastic plates combined together, the one being a metal plate, the other being a plate of soft and elastic material, one edge of the metal plate forming the ruling edge, while the other plate keeps the distance between the ruling edge and the paper to be ruled.

ELECTRICAL APPLIANCES.

No. 490,354.—Electrical Mat. William G. James, Harlem, Ill.

An electrical mat consisting of a lower plate provided with upturned flanges at its edges, an elastic upper plate having its edges inserted in said flanges, this plate being normally held up out of contact with the lower plate and insulating material interposed between the edges of the two plates.

No. 490,641.—Insulating Compound. Mathew H. Devey, Chester, Pa.

A composition of matter for electrical purposes consisting of powdered slag, glass, boiled linseed-oil, driers, shellac, and paraffine.

MISCELLANEOUS.

No. 490,407.—Hammer for Autoharps. Christian H. Eisenbrandt, Baltimore, Md.

A hammer for stringed instruments consisting of a strip of metal, sheathed in a rubber, felt, or leather sleeve, and having a beak projecting beyond the rubber sleeve.

No. 490,500.—Process of Treating Vulcanized Rubber to Render it Adhesive. Jean M. Raymond, Paris, France.

The process herein described of rendering vulcanized rubber adhesive consisting of treating said rubber with benzine or a substance having an analogous action thereupon, then immersing the rubber in a solution of permanganate of potassium and a suitable acid, and again treating the rubber with benzine or a substance having similar action thereon.

No. 492,092.—Non-Heat-Conducting Composition. Richard V. Mattison, Ambler, Pa.

A non-heat-conducting composition composed of calcium carbonate, magnesium carbonate, and asbestos.

No. 492,093.—Non-Heat-Conducting Composition for Covering Boilers, etc. Richard V. Mattison, Ambler, Pa.

A non-heat-conducting compound composed of carbonate magnesium, plaster paris, asbestos and wood-pulp.

No. 492,094.—Non-Heat-Conducting Composition for Coating Boilers. Richard V. Mattison, Ambler, Pa.

A non-heat-conducting compound of carbonate or magnesium, carbonate of calcium, asbestos and wood-pulp.

No 490,170.—Artificial Flower and Mode of Making Same. Mathieu E. A. Souchet, Paris, France, assignor of one-half to Marie Oller, same place.

As a new article of manufacture, artificial flowers or foliage having the several parts made of sheets of celluloid cut out and bent up to the shape of the said parts, colored to imitate natural colors, and the several parts mounted together like natural flowers of foliage.

INDIA-RUBBER SCRAP.

RUBBER-MEN who handle hose generally carry a certain line of brass goods in connection therewith, and manufacturers, while they do not make such goods, generally arrange to supply them. Hose-straps are generally from three to seven inches long, and are inexpensive, as are strap fasteners and menders. Suction-hose strainers vary in size from 1½ to 6 inches, and the latter are quoted as high as $50. Then there are screw-tip hose-pipes, some of them of drawn tube, and costing a neat little sum. Some hose-couplings are pretty expensive, especially for the large sizes which are about $50 each. Those above three inches are cut to iron-pipe thread. Steam-hose couplings are made heavy, with long shanks. Then there are clamps, nipples, caps, reducers, and that most convenient article of all, the nozzle, all showing a variety hardly known to the layman.

* * *

AN English manufacturer undertook last year to stimulate his workmen with rewards for the best work on hose and belting, giving £5 premium to the highest average produced by any one for each class of goods. The competition was so severe in hose that the £5 prize was divided among five persons. The belt premium went to a workman who had only two faults in the whole year. It is unnecessary to add that such a plan improved all workmanship beyond calculation.

* * *

ACCORDING to some authorities, India-rubber was used for insulation as early as 1812. In that year Schilling, an attaché of the Russian embassy in Munich, made a copper wire, insulated with a thin coating of India-rubber and varnish, which he laid both underground and in the sea, for the purpose of exploding powder across the Neva, and also across the Seine. The telegraph had been suggested then, but it was years before it was put into practical use, and then Gutta-percha was found, and assumed sway in matters of insulation. At this early date India-rubber was very young in a commercial sense, and in the slow movements of those days, it is remarkable that its adaptation was then made. The cables mentioned were seven miles long.

* * *

THE omnibuses in Glasgow are being equipped with the pneumatic tire. The tires are 3½ inches in diameter, and have several folds of canvas wrapped around them as a protection, as well as a covering of wire-woven netting.

* * *

THE manufacture of webbing is slowly drifting towards the Russian Jew. At present all, or nearly all, suspenders are made by that nationality, the people of which seems to be especially adapted to such work.

* * *

RUBBER rolls used in the feed of various machines can be trued up by grinding with a coarse open emery wheel, the face of which is to be constantly chalked during the operation.

* * *

RUBBER-MEN who sell to railroads note the peculiar fact that all the roads in the South, with the exception of two, are in the hands of receivers, and collections from them were never more prompt. There are two trunk-line roads, however, that are lapsing badly, six and seven months on small bills, and two other roads which are watched with some interest. One of the largest roads is buying the cheapest sort of stuff, showing that ready money is what it needs. All the other roads in the country seem to be getting along fairly well.

QUITE a business is carried on by men who have been brought up in some special calling, and who associate that with rubber. Parties who know the druggists' trade are in request by rubber-men for druggists' sundries, many of the salesmen in rubber-shoe houses were brought up in leather, while cutters, tailors, and clothing salesmen drift toward the rubber store. It would seem that no rubber-man could grasp all the various industries into which his goods pass, but the man from outside trades can come to him and combine the two with advantage. In New York City there is a man who was brought up in the straw-hat business. He now supplies all the manufacturers with what they need in the rubber line, and there are several items. Smart, shrewd, and above all versatile, he makes a good living. He can make a speech at a political gathering as well as he can sell a bill of goods. He one day bought the wreck of the steamer *Oregon* and cleared a few thousands in that way. His career, however, goes to show that there are opportunities in combinations of this character.

* * *

IN molding rubber goods, as well as in doing almost everything else in the present day, care and skill are of importance. The mold should be such that the rubber can readily be removed after vulcanization. Again, there must be an allowance for shrinkage and the vent, and the highly-polished mold renders the rubber smooth and velvety. If the mold is different in finish, the goods will look badly, if it is not constructed with skill, it will make the work expensive. The mechanic who undertakes this work can make himself much more valuable if he will take pains to inform himself with regard to the working and use of rubber.

* * *

CEACA YAMNI, a Sioux brave, shakes a rubber foot in the sports of his tribe. He lost his natural leg and foot by disease.

A WASTED JOKE.

[FROM "PUCK."]

BENSON (who thinks he has found something funny):—It says here, my dear, that by placing an old rubber shoe on the stove while boiling cabbage, the disagreeable odor of the latter may be entirely avoided.

MRS. BENSON (sweetly):—Dear me! I should think the rubber shoe would smell worse than the cabbage.

WASHING-DAY.

["FROM PUCK."]

"EPHUM!"

"Vethum!"

"Come a-humpin' yere an' git yo' barf. Yo' mammy ain't got no time ter fool."

RUBBER-MEN claim that more rubber is used in deep-sea cables than is generally supposed. They also say that two cables requiring long stretches are already contracted for; one from Vancouver's Island to Australia, and another down the West Coast of Africa.

* * *

THERE are more than one million freight-cars in the country, and to equip them under the new law will require four million feet of hose. A premium is offered to any one who can go further in this calculation and give approximate figures as to how much rubber will be used in the four million feet of hose.

* * *

THE use of oil as an insulator is receiving marked attention, but in some of the experiments it has been noticed that when it covers the surface of hard rubber, either bare and clean or when the latter is covered with paraffine, the original high surface insulation gives way to that which is much inferior as represented by the oil. The normal insulation of the rubber, it was found, could not be restored until the rubber was recleaned or again paraffined.

* * *

AN English inventor suggests an improvement in the manufacture of rubber balls. They are now made by cementing four oblong pieces, or two pieces in a hemispherical form, together. In the improvement one of the half balls has a projecting rim, and the other being pressed into it and cemented to the overlap, a perfect air-tight union is formed by pressing a flexible steel band around the seam for a short time. The lap obviates the necessity of the ridge which now prevents the rubber ball from being a true sphere.

THE bicycle-men are playing upon what is known and what is unknown in rubber in a way that the public can hardly keep pace with. One now insists that a smooth pneumatic tire develops suction while a corrugated tire will not. The rubber-shoe men bore holes in a smooth-bottom rubber-soled shoe simply for the purpose of obtaining suction. The bicycle-man says that a pneumatic throws mud, therefore it develops suction. A wooden wheel does so also; we should call that adhesiveness. The mud simply sticks, and flies off.

* * *

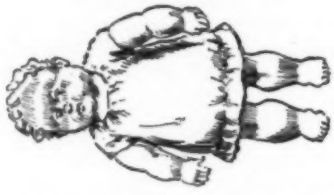
THE standard insulation of England is as follows: Pure India-rubber, then vulcanized India-rubber coated tape, the whole vulcanized together, braided tarred flax and all coated with a preservative compound. The different qualities consist in the thickness of the India-rubber, there being three of them, with resistances respectively of three hundred, six hundred, and two thousand megohms per mile.

* * *

AN inventor has patented a piece of elastic cloth to be run down trousers-legs to make the creases permanent.

READER, ARE YOU A HAPPY FATHER?

["FROM PUCK."]

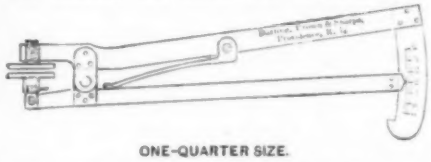


A BABY'S rubber doll with a squeaking apparatus inside is a harmless and interesting toy—

—but when a barefooted man steps on it in a dark room, the suggestion of a large and vociferous rat is simply blood-curdling.

NEW GOODS AND SPECIALTIES.

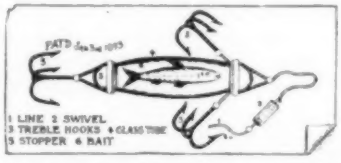
A RUBBER-GAGE that has been designed for the purpose of furnishing quick and accurate measurement of rubber goods in sheet form is shown in the accompanying illustration. It is made up in the best manner possible by manufacturers who have a reputation the world over of making the finest and most accurate tools. It is so simple in construction that a glance at the illustration will show exactly how it is used. Further than this it may be said that the indicator which runs over the graduated scale may be divided into any fractions of an inch that the finest work may call for. In the ordinary gage such as is here shown, the scale indicates 8-1000 of an inch, and the half numbers are also shown. Manufactured by Darling, Browne & Sharpe, Providence, R. I.



ONE-QUARTER SIZE.

A NEW IDEA FOR FISHERMEN.

IN the rubber trade there is a large percentage of good men and true who are excellent fishermen, and it is but natural that they should be interested in any new appliance designed to catch fish. The arrangement here shown will therefore have the best chance of an impartial trial, and if it is a success will receive their warmest approval. It is simply an annealed, flanged, flint-glass tube, so arranged as to hold a live minnow where it is not only in full sight of the fish, but is magnified by the glass so that it looks more large and appetizing than it really is. A hole in each end of the tube keeps the bait alive while the glass keeps him protected, in fact the minnow so protected succeeds in destroying its enemies, and yet in its crystal prison is free from harm. From actual tests with other devices this has caught ten to their one. Different sizes of this appliance are necessary for different fish, and the tubes are made 3½, 4½, and 5½ inches long and trimmed proportionately with white hooks, swivel and white wire leader ready for use. The minnow alone can be seen in a foot of water. Manufactured by Calvin V. Graves, Natural Bridge, Jefferson county, N. Y.



ASBESTOS LEAD-JOINT RUNNER.

A TOOL that is easy to handle and convenient to apply, and is adapted to different sizes of joints, is the lead-joint runner shown in the accompanying illustrations. It is made of a square woven cord of asbestos to which by a short length of chain is attached a simple clamp so that when the asbestos rope is drawn around the pipe, it can be securely clamped together, making a non-combustible collar about which the molten lead can be poured, holding it in place until it cools. It is absolutely impossible to destroy it no matter how hot the lead may be, and aside from this it is strong and elastic and will adapt itself to any unevenness in the joint. This is used for soil-, water-, and gas-pipes, or bell-pipes of every description, where a joint is to be poured with molten lead and is far superior to putty or clay, as it is affected neither by heat or cold. This is made in four sizes of round asbestos rope and the same number of sizes of square rope. Manufactured by William Vanderman, Willimantic, Conn.

ROUND RUNNER APPLIED.

SQUARE RUNNER APPLIED.

"TRUSTY" PEN OR PENCIL POCKET HOLDER.

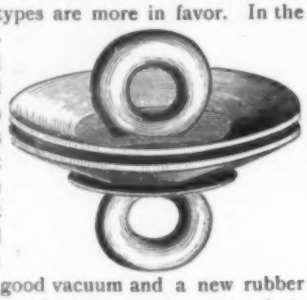
THE pen- or pencil-holder shown in the accompanying cuts is made entirely of rubber, with reversible arms which allow the pen or pencil to be drawn from the pocket, while holding it securely in place and preventing the possibility of its falling out. It is impossible to tear the clothing or scratch and cut the hands by its use. It will fit any stylographic or fountain pen, lead pencil, or pen holder. Manufactured by Charles W. Sever, Cambridge, Mass.

SOMETHING NEW FOR MOTORMEN.

SINCE the introduction of the electric street-car system various improvements have been made tending to greater comfort and safety for the men operating the cars. Notwithstanding these changes and advances, however, motormen are subjected to inconveniences and discomforts that ought to be got rid of. Among these are occasional shocks from the electric current which will, at times, find its way through their bodies by way of the handle by which they control the current. This thing is liable to occur on any car equipped by any system. As these handles are almost invariably made of brass, it has been proven that the motorman's hand constantly grasping the handle is liable to blood poisoning should he have any scratch or skin abrasion on the hand. There have been quite a number of such cases in Boston alone, where motormen employed on the electric cars have had to lay off and even been treated in hospitals for this very thing. Any device, therefore, that is likely to ensure the men from these mishaps and painful experiences is sure to meet with speedy recognition. Such a device is the "Acme" shield. It is made of rubber to conform to the shape of the handle; can be easily slipped on and off, though it clasps the handle very tightly when in place; is a thorough insulator, and being finely finished, soon pays for itself in the saving on the wear and tear of gloves or mittens such as motormen usually wear. List price, $6.00 per dozen; discount to the trade. Manufactured by C. C. Lewis, Cornhill and Washington streets, Boston.

THE COOPER PUMP-BUCKET.

THE chain-pump is not as popular in New England as it once was. In the single State of Connecticut it still has many friends, but even there other types are more in favor. In the great West, however, it is selling as rapidly as ever, and many a farmer there can tell all about the five leading makes of rubber buckets, and knows exactly their strong and weak points. Of them all the "Cooper" is perhaps the most popular. It is simple and durable. The two grooves on the outer edge form a very good vacuum and a new rubber is easily sprung on the link when the old one gives out. It is remarkable how much work these small rubber buckets do. In a twenty-foot well these buckets do all of the work. This of course is partly by lifting in the tube and partly by the vacuum formed by drawing it strong and thoroughly exhausting the air. The "Cooper" bucket is manufactured by King & Goddard, Pearl street, Boston.



THE "MELROSE" MACKINTOSH.

ORIGINALITY and good taste are two very necessary adjuncts to the designing of the higher-grade ladies' mackintoshes. The company that are always on the alert for the latest fashions, and who pride themselves that they keep ahead of all competitors, illustrate this month the "Melrose" mackintosh. This is an absolutely new style and is copied from no one. It is made with two capes, both of them being full military capes. Most of them, as the first class trade demands are made up silk lined. The upward progress of the manufacturers of these garments has been due to the fact that they have never tried to cheapen the garment, but rather to see how well it could be made. Their business increased during last year more than one-third and yet they sold only about one-half as many garments as the year before, a most significant fact as to the quality of the goods that they put on the market. The Melrose is manufactured by the Clifton Manufacturing Co., No. 65 Federal street, Boston.

THE "PEERLESS" NEWMARKET.

A THREE-CAPE mackintosh that is one of the most stylish garments yet produced is shown in the accompanying illustration. It is made of single texture usually, although on order it may be made of double texture. It is double-breasted, tight-fitting, and so made that it can be worn either with or without the capes. Every detail of the garment is carefully finished, the buttonholes being worked with silk, the seams being so carefully finished that there can be no pulling away or any leakages. It may be made up in any of the popular styles of cloth, and while the garment as shown is trimmed with large ivory buttons, various styles may be used on it. This so far has been one of the best sellers that has been put on the market for a number of seasons. Manufactured by the Norfolk Rubber Co., Chauncy street, Boston.

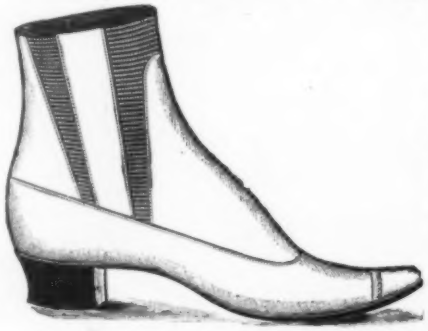
THE "PEERLESS."

A PILLOW AND BED VENTILATOR.

THE pillow and bed ventilator is a recent invention brought out in Boston. It consists simply of a rubber tube to which is attached a leather washer. The tube is inserted in one end of the pillow, or in the side of the mattress, and the leather washer is sewed to the side of the pillow or mattress. The idea is to allow the air to pass in and out, thus securing a ventilation, and having, it is said, a decided sanitary effect. Manufactured by the Pillow and Bed Ventilating Co., Boston.

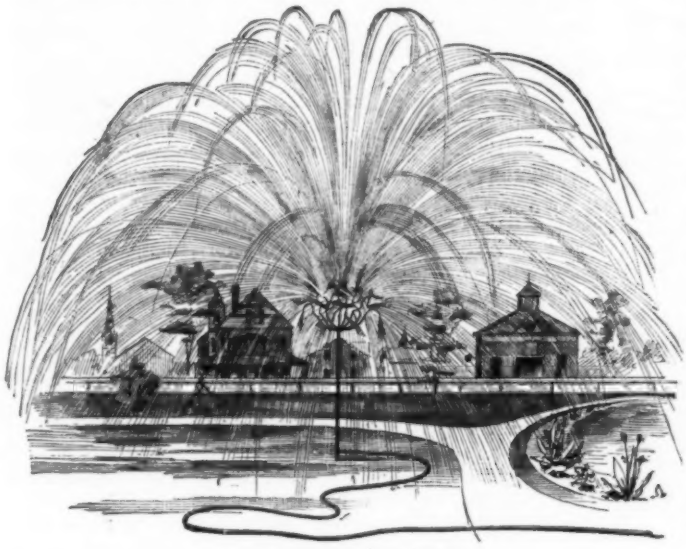
PETIOLE CONGRESS SHOE.

ONE decided disadvantage about a Congress shoe has been that the gore draws directly over the ankle-bone, and that the portion thus distended becomes chafed, oftentimes wearing off the woven covering and leaving the rubber threads exposed to view. To obviate this, the "Petiole" Congress has been designed. Here the goring runs in two strips, the part that touches the ankle-bone being a leather strip. Not only is this shoe easy to draw on, but the gore wears much longer and conforms to the foot very much better. The string nearest the instep is extended to the upper top of the shoe and thus in stooping there is an elastic surface presented which easily gives, doing away with the rigid feeling that a shoe tightly drawn about the ankle is apt to impart. In this shoe the Bridgeport gore is used and gives the best satisfaction. Manufactured by Thomas Emerson's Sons, No. 105 Summer street, Boston.



THE "STAR" LAWN-SPRINKLER.

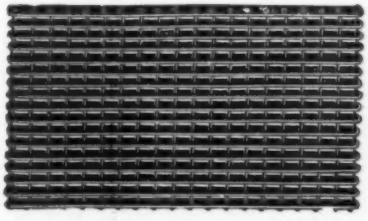
Of the many sprinklers that have been put on the market of late none shows more originality than that presented in the accompanying illustration. It is a sprinkler and fountain combined, and is exceedingly simple in its make-up. The branch pipes that extend from the central standard are of metal and are tipped with pieces of rubber tubing about four inches long, and when the standard which is sharpened at one end is thrust into the turf, and the water turned on, these tubes are given an erratic sort of rotary motion which throws the water in all directions and produces a very pretty effect. The whole apparatus is so simple that it is exceedingly durable and as there are no rotating metal parts that can become disabled or caught, a decided advantage is gained. The Standard can be quickly and securely set up on any piece of ground, no matter how rough or uneven, and will always prove effective as a sprinkler. Manufactured by the Boston Woven Hose and Rubber Co.



THE "STAR LAWN-SPRINKLER.

THE STRAIGHT RUBBER ROCHESTER MAT.

In this straight rubber mat (as the cut shows), the scrapers are movable and give way, to a slight extent, to the contact with the foot, thereby acting similarly to a reciprocating brush. The mat being made by galvanized steel rods, running through the entire width, and same riveted at the ends, holding them together, it proves that the mat is stoutly made and will last in any weather. Unlike all rubber mats this will not break, because of the galvanized steel rods holding every part firmly. This mat is offered at $1.25 per square foot, the same price as any other all rubber mat. It is ½ inch deep and presents the same scraping surface as the Rochester steel mat, which is offered by the same manufacturers,—the New York Steel Mat Co., Nos. 234-235 Broadway, New York city.



BAILEY'S RUBBER MANICURE.

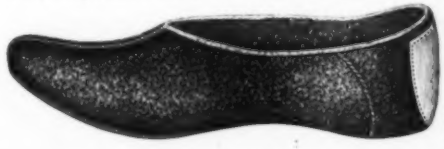
No man in the rubber trade to-day seems better able to furnish what most people want to buy than the inventor of this neat little appliance. It is made entirely of rubber, the blade being of hard rubber in the shape of a knife which effectually cleans the nails, and yet can in no way injure the delicate cuticle with which it may come in contact. This blade is set in a rubber block as is shown in the illustration, and the end of the block is corrugated and so arranged that it easily pushes back the skin on the top of the nail to its proper shape and also wipes the under surface of the nail after using the blade. In this way it cleanses it perfectly and can in no way injure it. The corrugations on the bottom are for smoothing the tips of the nails after the cutting, also for putting a fine polish on the whole surface. The blade itself can be drawn back into the soft rubber entirely out of the way and the whole device carried in the vest-pocket. This has already been endorsed by professional manicures as the neatest and most complete article for the purpose that has yet been devised. It is now on sale by all dealers in toilet goods or will be mailed on receipt of the price, 25 cents. C. J. Bailey & Co., No. 22 Boylston street, Boston.

THE ELECTRIC PATENT RUBBER HEEL.

A new rubber heel that is described as being made of a piece of the softest rubber, and that will wear much longer than leather heels, has just been brought out in Providence, R. I. The rubber is held to the shoe by a metal rim that encircles and holds it in place so that when the rubbers wear out they can be quickly replaced with new ones at a small expense. The appliance is very neat in appearance and will soon be put on the market. Manufactured by the What Cheer Agency, No. 216 Broad street, Providence, R. I.

KREIG'S SPECIAL FOOTWEAR.

The firm of J. K. Kreig & Co., No. 39 Warren street, New York city, have issued a new catalogue of "Special Footwear," with illustrations of a number of styles of interest to the rubber trade. The India Rubber World has been permitted to reproduce some of these styles, in the accompanying illustrations. The first is the "Zero" felt sock, in three styles distinguished as "A," "B," and "C," which



"ZERO" FELT SOCK.—Style A.

"ZERO" FELT SOCK.—Style B.

"ZERO" FELT SOCK.—Style C.

are to be worn inside of rubber boots. Style "A" has leather backs, style "B," heavy sheepskin soles and back, and

RED FELT SOCK.

SHEEPSKIN MOCCASIN.

style "C," white flannel lining, made waterproof. These are made in men's, boys', youths' and child's sizes. Another illustration represents a red felt sock to be worn inside of rubber boots, and the last shown is a sheepskin moccasin cut out of one piece. The same catalogue contains other items which may be sold in connection with the rubber-shoe trade.

THE IMPORTATION OF CRAVENETTE.

WITHIN the past two or three months importers have sought to throw upon the market a peculiar fabric called "cravenette." It had the qualifications of being perfectly waterproof, and at the same time it was useful for a woolen garment, with perhaps none of the drawbacks found in a mackintosh. The cloth was made by a secret process, unknown as yet in this country. It can also be made so cheaply that if it could gain a footing in this country woolen- and rubber-men would soon begin to feel as if something had stolen upon them during the night. It would not pay, however, to bring it into this country upon the present wool schedule.

Recent decisions have unearthed a waterproof schedule previously overlooked, and which proved to be not at all desirable, and far different from what that little band of clothing-men who went down to Washington in the McKinley days expected. The cravenette men relied upon getting their goods in under the waterproof schedule. Apparently they were correct in their views. But an iron kettle is waterproof, a water shoe is waterproof and so on. The Board of General Appraisers at New York had to view the question in a broad sense, else the whole woolen schedule would drop down to that of the waterproof, and that would be an absurdity.

The cravenette was, it is said, made to fit the McKinley law, and it simply illustrates the faculty of the human brain to devise methods to circumvent laws affecting political economy.

THE BENI GUM COMPANY.

IN the February issue of this journal mention was made of the incorporation under the laws of New York State of the Beni Gum Co., with $500,000 capital. The incorporators included the members of the rubber-brokerage firm of Earle Brothers & Co., and other capitalists of New York, but the larger part of the stock was credited to Baron H. Arnous de Riviere, who, by the way, is little known in New York. From a report contained in recent Associated Press dispatches it seems that Baron de Riviere's family reside in Mobile, Ala., and that he has recently been visiting them there and talking in public about the affairs of the new corporation. He has spent some twenty years in South America, and came recently to New York to obtain money to develop concessions of gold lands on the Beni river, in Bolivia. He reports having found New York capitalists unwilling to consider his gold-mining plans, yet when he mentioned incidentally the number of rubber trees on his lands he was listened to with much interest. The Beni gum is stated to be of superior quality, but under the present conditions of transportation trading in it is not very profitable. The gum is taken by water from the Beni down the Madeira to the Amazon, and thence to Pará, a distance of more than 4500 miles. The Baron says that when he asked New York importers why rubber was taken so far down the Amazon, and there subjected to the payment of an export duty of 22 per cent. *ad valorem* when it could be taken 500 miles to the Pacific coast and there exported free of duty, they replied that they had never before given the matter any thought. The Baron explained that his rubber forests are located in Bolivia, between the Beni river and the Andes. The route thither from the Pacific begins at Cocachacros and runs by rail to La Paz, or the pass in the Andes, whence a wagon road built by the Baron runs through the rubber forests to the Beni. The Baron claims to hold concessions from the Bolivian government conferring special privileges in consideration of the work of his company in developing the resources of the country. In addition to the Beni Gum Co. already mentioned the Beni Commercial Co. has been organized, with $2,500,000 capital, for gathering gum, cultivating rubber trees, and otherwise developing the country in which he has concessions.

WILL NOT EXHIBIT AT THE WORLD'S FAIR.

THE Hodgman Rubber Co. (New York) fully intended to be represented at the World's Fair at Chicago, but in common with many others they have been unfortunate in their negotiations with the officials of the Exposition. They placed on file with the authorities an application for space so long ago as last June, 1892, but could hear nothing from it until the first of February, 1893, when they received notice that one-half of the space requested would be allotted them.

The company, seeing that no time was to be lost, gave an order for show-cases and other articles necessary for display, and simultaneously wrote to Chicago for details. Much to their surprise they received a letter stating that the space was 100 square feet less than what they supposed it was, according to the official allotment. As this reduction would make the exhibition of little value, the order for show-cases, etc., was recalled, at considerable expense for material and time of mechanics wasted, and notice given to the officials of a relinquishment of space. Then came another surprise in the shape of an official letter stating that the official allotment was correct, but that through a clerical oversight the error of reducing the space 100 square feet had been made. But the first of March had in the meantime passed, and as everything had to be in Chicago by April 1, there was nothing else left but to accept conditions, circumstances, and facts with due resignation.

A LECTURE ON INDIA-RUBBER.

THE directors' reception for March was held last evening at the Young Men's Christian Union. Mr. Henry Clemens Pearson, editor of THE INDIA RUBBER WORLD, gave an interesting and instructive lecture on rubber, describing all its transitions from the forest to the factory. He exhibited samples of various kinds of rubber and implements used by the South American natives in gathering the crude material.—*Boston Herald, March 17.*

THE NEW RUBBER-SHOE LIST.

THE rubber-shoe price-lists for the season beginning on April 1 have been looked for with more than the usual degree of interest this year, on account of the curiosity felt with regard to the probable effect upon prices of the important consolidation of manufacturing concerns in this line during the past twelve months. The scale which has been fixed is the result of an agreement between the United States Rubber Co., embracing a dozen or more important plants, and the leading competing manufacturers. The first result of the publication of the new list was a big surprise to the trade, on account of the reduction in prices for the retail business. It was at once evident that a deviation from the line of discounts allowed for several years past was to be expected, as the manufacturers could hardly afford to offer such a reduction in lists without also cutting down the percentage of discounts. Predictions made to this effect were speedily verified, for during the last week in March the rate of discounts was made public, showing a marked change from the rate previously allowed.

Manifestly a new policy is to be pursued by the manufacturers hereafter. A most inconvenient feature of the rubber-shoe trade long has been the irregularity in prices which frequently defeated the most carefully-planned calculations in advance of the year's business. When discounts of 50 per cent. were allowed from list prices there was a great temptation to cut prices, and a campaign of cutting, when once begun, was almost certain to continue until evil consequences were felt in every department of the trade. The desirability of lessening the chances for such irregularities has always been a most potent argument for a combination of manufacturers. In reducing the list prices, and in offering slighter discounts, it is evident that the tendency is to place the base prices nearer the standard which consumers have been accustomed to paying, and also to take out of the way the temptation to underselling which large discounts have always presented.

The new discount is 20 & 8 per cent. to the jobber and 20 to the retailer, with the promise of an extra 5 per cent. to the jobber at the end of the year, to insure the maintenance of prices. This wide change from the discount of last year was not agreed upon without a long discussion among the parties concerned. A discount of 30 and 8 was at one time considered, but the advisability of a small percentage of discount was finally agreed upon all around as offering fewer opportunities for the demoralization of the trade. A discount to retailers of 20 & 12 has been adopted for "seconds,"

There is presented herewith a comparison of the prices for 1893 with those of 1892 on the basis of the list of the Meyer Rubber Co., which now forms a part of the United States Rubber Co. The different lists vary to some extent as to the lines of goods produced, but the same prices obtain throughout on goods of the same character and quality:

Overshoes.	Prices 1893.	Prices 1892.
Imitation Sandals.—Men's	$ .70	$ .80
Boys'	.55	.65
Youths'	.40	.50
Women's	.45	.55
Misses'	.35	.44
Child's	.30	.40
Heavy Overshoes.—Men's	.90	1.10
Boys'	.60	.75
Youths'	.45	.55
Women's	.50	.65
Misses'	.40	.50
Self-Acting Shoes.—Men's	.75	.90
Boys'	.60	.75
Women's	.50	.65
Footholds.—Men's	.60	.95
Women's	.40	.65
Croquets.—Women's Opera	.45	.55
Misses' "	.35	.44
Child's "	.30	.40
Light Overshoes.—Men's	.70	...
Women's	.45	...
Boots.		
Standard.—Hip or Hunting, Men's	4.50	5.60
" " Boys'	3.85	4.75
" " Youths'	2.80	3.50
Storm King, Men's	4.00	4.50
" " Boys'	3.35	4.20
" " Youths'	2.45	3.10
Knee, Men's	3.45	4.50
" Boys'	2.85	3.75
" Youths'	2.00	2.60
Short, Men's	3.25	4.25
" Boys'	2.60	3.40
" Youths'	1.80	2.40
" Women's Lined	1.80	2.40
" Misses'	1.50	2.00
" Child's	1.35	1.60
Pure Gum.—Hip or Hunting	5.30	6.50
Short, Men's	3.80	5.00
" Boys'	3.00	4.00
Wool Goods.		
Storm King Arctics.—Men's	1.90	....
Heavy Buckle Arctics.—Men's	1.50	2.00
Boys'	1.20	1.60
Youths'	1.00	....
Women's	1.15	1.55
Misses'	.90	1.20
Child's	.65	.90
Snow Excluders.—Men's	1.60	2.10
Boys'	1.30	....
Women's	1.25	1.60
Alaskas.—Men's Wool-lined	1.00	1.30
Boys' "	.90	1.10
Women's "	.85	.90
Self-Acting Alaskas.—Men's Wool-lined	1.05	1.40
Boys' "	.95	1.25
Women's "	.90	1.20
Lumbermen's.	Heel and Tap.	Heel and Tap.
Overs.—Men's	1.35	1.75
Boys'	1.15	1.35
Youths'	.95	1.05
Snow Excluders.—Men's	1.90	2.10
Boys'	1.60	....
Perfection.—Men's (one-buckle)	1.80	2.30
Boy's "	1.50	1.90
Blizzard.—Men's (two-buckle)	2.25	2.83

In the next table will be found a comparison of prices for the two years with the discounts applied, based upon some typical lines of goods. It will be seen that the cost to the jobber and retailer is increased on some lines considerably, though the price to the customer is in every instance reduced:

Description.	To Jobber— 1893.	1892.	To Retailer— 1893.	1892.	To Customer— 1893.	1892.
Men's pure gum canvas hip boots,	$3.69	$2.86	$4.24	$3.25	$5.30	$6.50
Men's Sporting Boots	3.13	2.56	3.60	2.80	4.50	5.60
Women's fleece or lined cotton boots	1.25	1.06	1.44	1.20	1.80	2.40
Men's heavy-buckle arctics	1.04	.88	1.20	1.00	1.50	2.00
Men's wool-lined Alaskas	.70	.57	.80	.65	1.00	1.30
Women's wool-lined Alaskas	.59	.40	.68	.45	.85	.90
Men's S. A. wool-lined Alaskas	.64	.62	.74	.70	1.05	1.40
Women's wool-lined Alaskas	.63	.53	.72	.60	.90	1.20
Men's imitation sandals	.49	.55	.56	.40	.70	.80
Women's imitation sandals	.31	.24	.36	.27	.45	.55
Women's croquets	.41	.24	.36	.27	.45	.55
Men's footholds	.43	.42	.48	.48	.60	.95
Women's footholds	.28	.28	.32	.32	.40	.65

[Fractions are omitted, the nearest whole number being taken.]

"Regarding prices," said a member of the United States Rubber Co. to THE INDIA RUBBER WORLD, "the situation one year ago was this: Rubber was selling at 63 cents per pound,

and all of the scattered companies were cutting each other seriously. The demand was not extraordinary, and discount after discount was made, until it can be truly said that the manufacturers made no profit. Now, what is the situation? There are only five companies in the field, and no one of them impecunious. This is perhaps a selfish point, but it is a condition that gives stability to any agreement that might be made. Naturally no agreement for higher prices could stand even now were it not based upon the laws of trade,—or in other words the laws of supply and demand,—and in that we have to look ahead and try to divine the future; and now we come to the substantial reasons for the advance.

"Rubber, as I have said, one year ago was selling at 63 cents; to-day the price is 76 cents, and if we should go into the market and buy large lots we are certain that it would touch 86 cents. This is a point about which a good deal of skill has to be used. We have to make our prices on the first of April, and contracts follow soon after. That fixed price remains so for one year, and if rubber should move up to $1 per pound we should be practically helpless. Then the fabric man, who, as you know, has raised his prices 20 per cent., is another factor, and you also know we use his goods to a large extent. These are two elements of cost greater than before, and with the uncertainty an advance is imperative.

"In arranging the lists we kept in mind that for a long time there had been great irregularities. We could go to a good, first-class store and buy a popular kind of shoes for $1; and then we could turn on our heel and walk into one of the mammoth establishments of which the present age furnishes so many, and buy identically the same article for 50 cents. I am not dealing in fiction; this is the case in one large city and I could give you names. Now, we had no other course than to bring down our list to the consumer, who in the anomalous condition of affairs, was paying a little less than he will now, and cut down the discounts which had moved to high figures in the course of past events. We pay more for everything we use, and have made little or no profit in the past. These conditions well studied will show to the thoughtful mind that our position is well taken, and that the apparently large advance is very much modified when a broad view is taken of the situation."

The "conditions" of the contracts for the sale of rubber boots and shoes for the season approaching will be as follows: Prices to retailers will be subject to 20 per cent. discount on "firsts" and 20 & 12 on "seconds." The terms will be on fall orders dated November 1, payment within thirty days from date. For orders after November 1, payment thirty days from date of shipment and cash discount at the rate of 8 per cent. per annum, allowed for prepayments prior to November 1; a cash discount of 1 per cent., 10 days allowed for prepayment after November 1. Actual freight will be allowed from any point east of the western boundary of Minnesota, Iowa, Arkansas, Missouri, and Louisiana, and from any other point in the same territory on all goods delivered prior to October 31. No freight at all for delivery will be allowed at any point after October 31, except on detailed orders received prior to October 1. Any concessions or variations from above prices and terms by houses purchasing or their representatives, either directly or indirectly, will be considered a violation of the contract. The first parties in the contract advise that every salesman connected with a rubber house be supplied with a copy of these conditions.

During a recent visit to New York, Mr. Joseph Banigan, president of the Woonsocket Rubber Co., said to THE INDIA RUBBER WORLD: "The rubber-shoe manufacturers to-day hold stocks less than the stocks held at the beginning of the last season by $6,000,000. This amounts to 25 per cent. of the annual production of these goods. It is good business to make an advance in prices at this time."

* * *

THE NEW PRICES ANALYZED.

THREE years ago, with a price-list that went out of existence last month, the discount on rubber boots and shoes given to retailers and dealers were 38 and 6, and it was then generally agreed that prices were too low. Following that year, came the season of 1891, when discounts were 45 and 5, and then the year 1892 when 50 was given off the list-price. These drops in prices were brought about by a number of circumstances, chief among which was a succession of winters when there was but little call for rubber footwear. To show what this means it may be well to cite one large company that in 1891 were forced to carry over $500,000 worth of boots and shoes to the next season. As these goods had to be insured, stored, and handled, and as the amount of money that they tied up called for interest, the cost of this state of affairs was $44,000 for that year. Rather than suffer such losses certain of the manufacturers sold as low as possible, thereby inaugurating the last discount in 1892 of 50 per cent. It was this state of affairs that made the United States Rubber Co. possible, for with prices so low that there was no money in the business or else actual loss, an era of economies and a cessation of hostilities was a necessity. During this time it was only those companies that did an immense business, or that were situated so as to buy supplies, such as crude rubber, to the best possible advantage, that made even a small profit. Outside of this there were some that had specialties in footwear for which there was a call and which brought a fair price, and there were the companies that made, in addition to boots and shoes, other lines of rubber goods. As a matter of fact during the years mentioned more than one company depended upon mechanical rubber goods, clothing, or sundries for the profits that they were able to show.

Now while the prices dropped every one was happy, even if it killed the goose that laid the golden egg in the retailer's hat; nor did they realize how great the discounts were, and the way they accept the new discounts proves this. To give an example: Suppose a man is selling boots at $2 a pair; 50 per cent. off means $1 a pair. The following year 50 per cent. off means 50 cents a pair. Now, putting the price back, 50 cents added to the last price, making $1 a pair, means 100 per cent. rise, and it is just in the net of this misunderstanding that the retailer is floundering. Fifty cents means 50 per cent. going down and 100 per cent. going up. In the lists published hip boots are mentioned as going up 44 per cent.; going down the same amount off would have been chronicled as only 30½ per cent. showing that the apparent rise is greater than the actual. Taking the list prices of the last three years as a basis the present price for 1893 shows a discount of 40 per cent. Had the list remained the same, the record would read: 1890, 38 and 6; 1891, 45 and 5; 1892, 50; 1893, 40. Going back to 1890, when discounts were fair, and averaging up the cost of goods to retailers, we find that on an article costing $1 at that time the retailer paid .5928; to-day, under the new price-list for 1893, it is only .60, or 1¼ per cent. higher.

Men's sandals show the greatest rise in the new list, but for years past they have been made at an actual loss, and the manufacturers have decided that if the public call for them they must pay a fair price. Short boots show the least reduction and are one of the largest items. The present price applied to the old list price would show that the retailer received a discount of 39.824 per cent., which would suit him exactly expressed that way. When it is called 20 per. cent off the new list, how-

ever, it makes him feel cheated. At the old list and the 1890 discounts the short boot netted $2.477; at the new it nets $2.60, an increase of only 5 per cent. Take men's hip boots,—goods having the largest amount of rubber, and good rubber at that. With the present net price at $4.24 the price for 1890 is found to be $3.782, or a difference only of 12⅛ per cent.

No one can tell what next season is to be. It may be that the rubber boot and shoe manufacturers will as in the past have immense stocks to carry over and have to pay 8 per cent. a year to do it. It may be and many say it will be, that crude rubber will go higher and will cut away the margin of profit in the business. At all events whether or not any of those things happen the wise manufacturer while there are possibilities of such disastrous changes will so make and sell his goods that these contingencies will be provided for, even if it means a rise in price of 1¼ per cent.

* * *

"SECONDS" AND "THIRDS."

The following statement is from the *Boot and Shoe Recorder*: "The first grades will be sold under the regular company brands as heretofore. For the second grades it is proposed to have a common brand for all the companies controlled by the United States Rubber Co. It is the intention to have all the seconds made in one mill and the National India Rubber Co. plant has been designated for this purpose. The brands for seconds will be 'Empire Rubber Co.,' 'Federal Rubber Co.,' or 'Connecticut Rubber Co.' In the same way all the third grades will be assigned to one or two mills and the plants of the companies in New Jersey will have this portion of the work. The thirds will be sold under the brand of 'Amazon Rubber Co.' or Columbia Rubber Co., and no thirds will be made in boots or lumbermen's. This is an arrangement which will meet with general approval, for it will do away with the confusion of fifteen or twenty brands in the cheap grades with all the chances for misleading by oversharp dealers."

* * *

NEW PRICE-LISTS RECEIVED.

The Colchester Rubber Co.'s new price-list embraces, as a new feature, engravings of the different styles of their goods, numbered to correspond with similar illustrations in their large catalogue.

The Woonsocket Rubber Co.'s price-list, in addition to the standard product of that company, embraces a separate catalogue of their "starred" goods, which are manufactured to order only, none being carried in stock.

The Goodyear's Metallic Rubber Shoe Co. (Wales-Goodyear Shoe Co.) have a "stock number" for each item in the list, which may be used by customers in ordering goods, in lieu of each item included in a bill. A point of interest to the trade is contained in the following extract from the introductory paragraphs which precede the price-list: "We have manufactured rubber boots and shoes for forty-eight years, and our experience teaches us that in a majority of cases where complaints are made that goods do not give satisfaction, the trouble arises from the fact that the rubbers do not fit the shoes over which they are worn, being either too long, too short, or too narrow."

The American Rubber Co. list separately "American tennis, yachting, and bicycle shoes" and "English sole tennis." All rolled-edge goods are 20 cents extra to the standard list.

The Boston Rubber Co. announce a full list of goods under the "Bell" brand. They have a full line of specialties packed in white glazed cartons.

The L. Candee & Co.'s list also announces rolled-edge soles at 20 cents extra.

The National India Rubber Co.'s list differs in form from the others in being compactly printed on a sheet which may be unfolded, exhibiting at a glance their whole line of products.

The price-list of the Boston Rubber Shoe Co. is accompanied by an attractive-looking illustrated pocket catalogue of their goods. Many of the items in the price-list are "starred," to indicate that they are made to special order only.

The New Brunswick Rubber Co.'s price-list of boots and shoes comes from the New York sales-agent, Charles A. Osborn. It is accompanied by a separate sheet of the "Amazon" brand of goods of the Amazon Rubber Co.

The list of the Meyer Rubber Co. is also printed on a folding sheet. A portion of it is devoted to the Meyer specialties in cartons, made expressly for the fine trade.

* * *

THE TRADE IN ALBANY.

In an interview with an India Rubber World man Mr. J. H. Mayell, of Henry Mayell & Son, said of the new boot and shoe prices:

"I think that the advance in the price of rubber shoes will prove a success on account of the fact that they have been too low with relation to the cost of rubber and other articles. It will create a better feeling, also. So far as restricting the consumption of boots and shoes, I don't believe that it will make much difference. Our people up here have more money to spend than formerly, wages are being increased, and they can afford to pay more for what they buy. The situation is a strong one, and succeeding the demoralization of the past two or three years it is a great relief to us all, and the new list ought now to be a success, and I firmly believe it will."

A first-class retailer who carries nothing but fine stock, but who did not care to be quoted by name, said:

"I buy all my goods of the India Rubber Glove Co. They sell no 'seconds,' and I shall have to charge more for shoes, which I hate to do. I do not believe the advance will hold. The trouble is in the 'thirds,' and the 'orphans,' as we call a shoe that no one cares to father. These shoes are always coming upon the market, and they are made so cheaply that they are a constant menace to the trade. A great many people know nothing about compounds, and jump to the conclusion that a shoe is all rubber. They don't see why one shoe is worth more than another, and when somebody comes out with a nineteen-cent 'orphan,' it is hard work for us to get 90 cents. I will not keep a 'second' in my store in either rubber or leather; but I am apt to feel the demoralization caused by inferior qualities. There is another weak feature in the situation: the companies will not hang together. It is not in the nature of things, and the same parties who led the last break will do it again. They are made that way and cannot help it now. There will not be so many rubbers sold, and profits are so enticing that the manufacturers will grow restive and find some way to outwit one another, and then the break will come."

Another dealer said: "I sell a good many arctics to the railroad men. They wear out three pair in a year. They also wear long boots. Won't they kick! That class of people must have them; but there is a larger number who will fly to the cork-sole and heavy boot. That custom I shall lose. The demand will fall off in a way that will astonish the manufacturers, who apparently have forgotten their last year's professions that their glorious aim was to economize by means of a combination, and be benefactors to the rubber wearer. Come around and see me a year hence and we will make some red-letter marks."

The use of pneumatic tires on invalid chairs and children's carriages has become common in Ireland.

THE AFFAIRS OF THE UNITED STATES RUBBER COMPANY.

LITTLE interest was manifested by the public in the affairs of the United States Rubber Co. during February, the total transactions on the New York Stock Exchange in Rubber aggregating only about 7000 shares for the month. Transactions in this stock continued at about the same rate until March 20, when a sudden increase occurred in the extent of the trading, accompanied by a heavy rise in prices. This was explained in New York, Boston, and elsewhere, by persons claiming to be informed, by a statement that the Colchester Rubber Co. had been brought into the United States Rubber Co.,—at least to the extent of a working agreement,—and that the Woonsocket company were also in a position to join the big "combine." In Boston the rumor with regard to the latter took the shape of a publication to this effect: "Gossip has it that negotiations are now in progress looking to the absorption of the Woonsocket Rubber Co. by the 'trust,' and further that they were started by President Banigan of the Woonsocket company submitting a written proposition to the management of the United States Rubber Co. With the Woonsocket company inside the fold there will be only one large company outside. That company, by the way, has conducted its business all along in line with the policy followed by the United States company. In fact it has stood towards the United States in the same attitude as the firm of Nash, Spaulding & Co. has stood all along towards the American Sugar Refining Co. Recent developments, however, make it morally certain that this company will at no distant day become part and parcel of the United States."

During the period of greatest activity in rubber trading Mr. Joseph Banigan visited New York and gave an emphatic denial to any reports affecting his company.

"The Woonsocket Rubber Co. is not with the United States Rubber Co.," he said to an INDIA RUBBER WORLD man, "and nothing has taken place looking toward our amalgamation with it that I have deemed important enough to report to our stockholders, or even to the directors of our company. I am ready to sell anything I have except my family and my friendship, but up to the present my rubber business has not been sold. There is nothing in the reports."

A coincidence which may be worth noting is that upon the day of Mr. Banigan's arrival in New York rubber took a heavy drop in Wall street, having opened that day at 55¼ and closing at 51, on transactions larger than for any other day in the month.

The reports of a connection between the Colchester company and the United States Rubber Co. are also denied, although they were accepted in many quarters as correct.

An officer of the United States Rubber Co. said to an INDIA RUBBER WORLD representative: "There have been negotiations in progress for some time between the United States Rubber Co. and the Woonsocket and the Colchester companies, but they have come to nothing, and for the present they are entirely off, and the the situation practically stands as though they had never been commenced. Of course when trades are abandoned, they are more readily resumed in the way of negotiations, but at the moment all communication is at an end."

During the latter week in March a report was circulated in Wall street that "on April 1 the rubber company will advance the price of rubber shoes five cents a pair, which means an increase of $2,000,000 a year in the company's earnings." This would indicate an output of 40,000,000 pairs of rubber shoes. According to one member of the trade interviewed by THE INDIA RUBBER WORLD this estimate of the year's production is not an extravagant one. This report was speedily followed by the announcement of the rates of discount from the trade-list adopted by the rubber-shoe manufacturers, the details of which will be found in another part of this paper. It will be seen by comparison of the new prices with those of last year that a greater advance than five cents per pair on an average will be reaped by the manufacturers, although the prices advertised to be charged consumers will be smaller than heretofore.

The quotations which follow represent the transactions in Rubber stocks on the New York Stock Exchange since the last report given in these pages:

DATES.	COMMON.			PREFERRED.		
	Shares.	High.	Low	Shares.	High.	Low.
March 9...	75	42¾	42¾	5	95¼	95¼
March 10...	....	....	....	....	....	....
March 11...	400	43¼	43	150	93¼	93¼
March 13...	30	44½	44½	205	95	95
March 14...	159	43	43	135	94	94
March 15...	710	42	42	110	93¾	93¾
March 16...	825	42¾	42	....	....	....
March 17...	142	42	42	50	93¼	93¼
March 18...	405	45	42⅛	220	94	93
March 20...	2359	47¼	43¾	50	95¾	95⅜
March 21...	1773	48¼	46⅛	610	95	94⅛
March 22...	1389	49¼	47½	114	96½	96½
March 23...	3349	50⅛	48½	167	96½	96½
March 24 ..	5655	55¼	50¼	550	99	97
March 25...	3667	57½	55¼	6	98½	98½
March 27...	3390	58½	54¼	30	98	98
March 28...	2090	55¾	51	....	....	....
March 29...	2360	53½	52¼	....	....	....
March 30...	1060	54	53	141	97½	97½
November ...	31,208	44¾	38¾	....	....	....
December.....	15,943	48¼	39	2,607	99	94½
January	9,604	47¼	42½	5,521	99	94
February	7,024	46⅛	43	1,333	97	92½
March...	30,438	58½	42	2,935	99	93

The situation in Boston was reviewed in the *Globe* of that city, of the date of March 25, as follows: "Rubber just boomed yesterday. . . . Opening at 50, an advance of ⅛ over Thursday's closing, the stock quickly went upward, and easily touched 54¼ at noon, reacting a little thereafter. Up to noon 2000 shares were sold in Boston, in lots ranging from one to 300 shares, and it was quite the feature of the market.

"Mr. George A. Alden, who probably carries about as much information on rubber under his hat as any one, explained to the *Globe* yesterday that this new activity in United States Rubber Co. stock is due to the fact that the best season for eight years in the rubber business of the country is now closing.

"The winter began early and is ending late, and the ill winds that blew snow down the backs of the public, piled up drifts in front of their doors, and made slush for them to wade through, has resulted in such a demand for rubber goods of all kinds that everything in the factories, even the old, left-over stock, has been cleaned up and the rubber men are metaphorically laughing in their sleeves as they think of the fat profits they have scooped in.

"Then, again, the 8 per cent. dividend on the $13,475,500 of preferred stock comes due May 1, and it is expected that there will be enough surplus of profit to pay a small dividend on the common, although some are opposed to that.

"But that is not all. It is stated that the Woonsocket Rubber Co., one of the only two important rubber concerns not in the combination, the other being the Boston Rubber Shoe Co., is seriously thinking of coming into the fold. The matter is now in the hands of a sub-committee. This is why rubber stock is so 'elastic.'

"The company has an authorized capital of $50,000,000 and a paid up capital of $26,423,600. Last year's profits were $1,181,186, and this year's will go away above that amount. There are eleven concerns in the combine, with a total plant valuation of $5,000,000."

The Boston *Herald* of the same date said: "There was nothing like rubber stock to-day. From 49¼ last night it was carried to 55¼, with moderate reaction. There has been nothing in late market dealings which has approached more nearly to pure gambling than the trading in rubber common. It is debated whether the stock is worth 15 or 16 per share, and yet it sells at 55. And on what? Nine parts of manipulation and one part of rumor. The rumor even is not new. It is that the Woonsocket Rubber Co. is to be absorbed. So it may be, and yet, if the ears hear correctly, that point is still debatable. The demands of the Woonsocket company are said to be such that it is exceedingly doubtful whether the trust will comply with them. It may be that these demands will be modified. Concede the point, and will anybody, does anybody, claim that the stock is worth 50 per cent. of what it is selling for, whether valued from assets or dividend prospects?"

And the *Advertiser* said: "Rubber continued to boom, crossing 55. A couple of brokers who represented the inside interests did about all the trading. Changes of a point at a quotation were numerous. Traders are comparing it to tobacco, and say the manipulation is exactly the same, only not so much of it."

* * *

CHANGES IN READE STREET.

ABOUT two weeks ago the change that had been brought about in the rubber business by the formation of the United States Rubber Co. began to be peculiarly manifest in Reade street, New York. A change in prices had taken place and had been an absorbing theme of gossip for several days, but almost in a twinkling "To Let" signs were placed in front of the stores of the American Rubber Co. (formerly that of the New Jersey Rubber Shoe Co.); the Wales-Goodyear Rubber Shoe Co.; the New Brunswick Rubber Shoe Co., and the Manhattan Rubber Shoe Co. The employés and the officers of the different companies could not tell accurately the state of affairs, but enough was gleaned to learn that all the companies would abandon their present locations and find temporary quarters in the store of the L. & C. Wise Co., No. 88 Reade street, which will be vacant in the latter part of this month. The Meyer Rubber Co. will also go into the new quarters, but as their store has already been leased to other stores, the "To Let" sign was absent from the front of their store.

The American Rubber Co. will abandon their New York office, an arrangement having been made with William Morse & Co. to represent them, as is detailed elsewhere in this paper. The Manhattan Rubber Shoe Co., it was said, may not go with the rest, the arrangements for their union with the United States Rubber Co. not admitted yet to have been completed. However this may be, the Manhattan Rubber Shoe Co. is under the wing of the big company in almost every detail of business that the former transacts, and it is said that it is practically, if not yet legally, a part of the consolidation.

Parties who seem to be well informed state that the United States Rubber Co., as represented in its several parts, will remain in the temporary quarters provided for them until the building on the corner of Reade and Church streets, now occupied by the New York Rubber Co., can be had, when it will be fitted up into small separate offices for the use of the different sub-companies, and the main office of the United States Rubber Co. will then be moved from its present location on the corner of Beaver and Broad streets. This it is said cannot take place for fully a year, as the present tenants at Church and Reade streets have leases which will not expire for that time. It is not meant, by the way, that the New York Rubber Co. are to vacate their present quarters in this building.

The present change will be eminently an economical one, six stores being merged into one, four of them being very roomy and one a large corner warehouse. This saving will count up into the tens of thousands, while in addition there can be inaugurated a reduction in janitor's wages, trucking expenses, heating, lighting, etc. There cannot be much stock carried in the present locality, and shipments will naturally have to be made direct from the factories, and this can so be managed as to make another saving. As a rule the traveling-men and clerks now employed will be provided for, although there are ill-concealed fears in some directions about the distant future. This is a factor dependent to some extent upon business, but the rubber trade is a growing one in every direction, and there is room for all good men for years to come.

* * *

WILLIAM MORSE & CO.

AMONG the changes growing out of the formation of the United States Rubber Co. the one suggested in the following circular is important, inasmuch as it is an exception to the general policy pursued by the new consolidation:

DEAR SIR: As we have decided to discontinue selling the retail trade, we have sold our entire New York business, formerly conducted by us at No. 78 Reade street, to the firm of William Morse & Co., who will carry a complete stock of our rubber boots, shoes, and clothing. Mr. Morse will continue to act as our agent in selling the jobbing trade for us over his former territory. Trusting that the liberal patronage, which has been given us in the past, will be continued with them in the future, we are respectfully yours, AMERICAN RUBBER CO.

New York, April 1, 1893.

DEAR SIR: We have, this day, purchased the rubber jobbing business formerly conducted by the American Rubber Co. at No. 78 Reade street, New York, and propose to carry a complete stock of rubber boots, shoes, and clothing, and sell direct to the retail trade, and trust we can prove it to your advantage to buy your rubber goods where they carry a complete stock to supply your wants. Hoping the patronage given so freely to the American Rubber Co. in the past will be merited again by us, we are respectfully yours, WM. MORSE & CO.

New York, April 1, 1893.

The American Rubber Co, had built up an extensive business among the retail boot- and shoe-men in the city of New York, and also in clothing, and it was thought advisable not to disturb the advantages gained by an abrupt change. The agent in New York had been largely instrumental in securing this trade, and as he was desirous of purchasing the good-will of this branch of the business, it was accorded him. The retail trade of New York city will be supplied from the Reade-street store as heretofore, the change being that all such business will be transacted with William Morse & Co. Sales will be made to jobbers as heretofore, but shipments will be made from the factory direct to the purchaser. It must be remembered that the American Rubber Co. sell clothing also, which to some extent necessitated this new arrangement. While this is mentioned as an exception, it will be remembered that the National India Rubber Co. have also the same conditions, and the office of the Goodyear Rubber Co. for the disposal of the goods of the company at Bristol has not been relinquished.

TRADE AND PERSONAL NOTES.

GOODYEAR'S India Rubber Glove Manufacturing Co. are making additions and improvements to their factory at Naugatuck, Conn. Notwithstanding the impression prevailing in some quarters that the Glove company have cast their fortunes with the United States Rubber Co., there is the best of authority for stating that this is not true; moreover, there is no intention of their losing their identity in this manner.

—A. C. Banker, of the Columbia Rubber Works Co. (New York), is in the west selling the Palmer tire.

—The Hodgman Rubber Co. (New York) report an excellent business in coats and mackintoshes.

—The revolution in Manáos, which was cabled exclusively to a New York importing firm last month as having been subdued, was really a fact, although perhaps it could have been better expressed in "Yankee" by saying, "Riot quelled." It was little more than a street mob.

—C. H. Dale, of the Peerless Rubber Manufacturing Co., is taking one of his periodical western trips.

—The rubber-goring factory owned by Dean, Crass & Co., at Rockland, Mass., is full of orders, and is keeping pace with business only by positive energy.

—George F. Hodgman, president of the Hodgman Rubber Co., is on a trip of two months on the Pacific coast. Mr. Hodgman will return now in a few days.

—J. C. Balderston, of the National India Rubber Co., for twenty-five years kept a scrap-book in which was pasted every year the price-list of each rubber boot and shoe company. Unfortunately this curiosity was destroyed in one of the "shoe district fires" that have done so much damage.

—Spinney, Virtue & Co., of Lynn, Mass., are doing a fine business in hard-rubber specialties for electrical work. They are also getting their share of the soft rubber mold work, their press-room containing twenty-five steam-presses.

—The Globe Rubber Co. (Trenton) have just put in another Royle tubing-machine.

—Alexander Oliphant, formerly of the firm of Brook, Oliphant & Co. (Trenton), is now treasurer and stockholder in the Trenton Malleable Iron Co., a very prosperous concern.

—Samuel Cabot, of Boston, the well-known chemist, has produced a lampblack for rubber use that for strength of color and purity is said to far surpass anything heretofore known.

—The Newton (Mass.) Rubber Co. have recently fired up their 200 horse-power Hazelton "Porcupine" boiler. This boiler is of the water-tube type and is particularly adapted to rubber work, as it gives practically dry steam. It is encased in brick and rises to a height of 25 feet, with a diameter of 12 feet. The boiler is now run at about 100 pounds pressure in order to get the high heat for vulcanizing electrical goods which require a heat of from 315° to 320°.—*Newton Journal.*

—The business of the London Rubber Co., of Ashtabula, Ohio, continues to grow. They have given an order for an additional steam-engine to furnish power for running their sewing-machines. When this is installed the company will have four engines, with 215 horse-power.

—The Hartford Rubber Co. have received an order for 2800 sets of rubber tires for the wheel chairs to be used in the World's Columbian Exposition.

—The town of Perkinsville, N. Y., has ordered a hook-and-ladder truck from the Gleason & Bailey Manufacturing Co. of Seneca Falls, N. Y.

—The fire district of Warwick, R. I., is to add to its fire appliances two improved steel-frame hook and ladder trucks, to be built at the shops of the Gleason & Bailey Manufacturing Co., Seneca Falls, N. Y.

—A fire in the drying-room of the Boston Rubber Co.'s plant at Chelsea, Mass., on February 27, caused a loss of $300 on the building and $1000 on the stock. There was full insurance.

—It is promised that as soon as the weather is favorable work will be begun on the first of the new buildings for the Charles River Rubber Co., at Cambridgeport, Mass. It is to be a wooden structure, three stories high, 60 x 24 feet, with an "L" 100 feet in length. The company own four acres of land. Machinery has been contracted for sufficient to allow of a daily production of 3000 garments, and it is expected that the factory will be in operation before July.

—The directors named in the act of incorporation of the W. M. Leeper Co., of New York, filed at Albany on February 27, are W. M. Leeper, G. A. Harrington, and M. Goodman. They have $25,000 capital and will deal in boots, shoes, and rubbers.

—The New York Central and Hudson River Railroad Co. have placed an order for 1200 freight cars, which are to be equipped with the New York Air-Brake Co.'s improved automatic freight car brakes.

—A New Haven newspaper says that a number of the employés of the Candee Rubber Co. engaged in manufacturing the company's exhibit for the World's Fair have been withdrawn from that employment. The space allotted to the company for their exhibit has been reduced.

—To sell more rubbers in one season than another requires very little effort on the part of nature. The excess of rainfall in New York State since January 1, compared with last year, is 1.26 inches. But then an inch on a man's nose would make a monstrosity, and so much more rain is considerable.

—Texas salesmen report an excellent growing demand for rubber goods, including hose and belting, in that State. The outlook in the south is better than it ever was before.

—The Exeter (N. H.) Rubber Step Co. are obtaining an excellent reputation abroad. They made a large consignment in March of their goods to Birmingham, England.

—The American Wringer Co. have gradually increased their capacity at Woonsocket, R. I., until now they turn out 2800 rolls per day. The maximum capacity of the mill will be 5000 per day. It will be remembered that the company began only recently to make their own rolls.

—The coming season in the shoe trade will be a lively one. A western firm, taking time by the forelock, has booked a single order with the Woonsocket Rubber Co. for 1000 cases.

—Among the Pennsylvania Dutch in Lancaster county the "Pembroke" rubber, made by the Candee people, seems to have the call. The "Glove" people are also well liked by the jobbers. Perhaps the other people have no rubbers to sell just now.

—John A. C. Hamill's manufactory of rubber goods—druggists' sundries, mackintosh coats and wringer-rolls—at Bristol Neck, R. I., was burned, March 16. The loss was $3000, covered by insurance. Mr. Hamill had just been putting in a large steam-press.

—Business is increasing at the rubber goring factory on Park street, Rockland. A new addition has been built on, and twelve new rooms will be placed in the factory this week.—*Brockton (Mass.) Enterprise.*

—In country drug stores it is said that the demand for druggists' sundries is constantly on the increase. An Eastern man strolled into a little drug-store in Maryland the other day. He could not count six dwelling-houses in sight outside, but the young druggist had a full assortment of rubber goods. The druggist said that nothing in the comb line except rubber could be sold. They were clean, durable, and took the popular fancy. He had calls for almost everything, but did not care to risk the sale of articles more expensive than the water-bottle.

—Hardware men in eastern Pennsylvania complain that they now have very little trade in belting and packing. The big mill-men hunt up the manufacturer and sell to him without the profit that generally falls to the intermediary.

—H. A. Tillinghast, of the Tillinghast Rubber Co. (Baltimore), is eminently a pioneer. He was born in Bristol, R. I., and after he wandered away the National people built upon his birthplace. In Philadelphia he built up a large business in connection with his brother. That started he went to Baltimore, and his friends now say that he has "scooped" the town. If so, he is sure to be uneasy before long, and will want to move.

—The Board of Trade of Egg Harbor City, N. J., is making an effort to establish a rubber factory in that town, and has pledged $10,000 for that purpose.

—The works of the Boston Rubber Co. at Franklin, Mass., closed on March 25, for two weeks, in order to take account of stock, and make the ordinary repairs necessitated by a busy run during the past winter.

—The National India Rubber Co. closed their factories in Bristol, R. I., during the last week of March to take stock, and make repairs.

—The incorporation is reported from Erie, Pa., of the Lake Shore Rubber Co., with $5000 capital, for the manufacture and sale of mechanical rubber goods, druggists' sundries, and other rubber novelties. William Henry Whitehead, Walter Scott, and Harry Vincent, all of Erie, are the directors.

—The belting, packing, and hose agencies heretofore controlled by J. W. Girvin & Co., on the Pacific coast,—whose failure was reported in this paper last month,—have been placed with Crane Company, of Portland, San Francisco, and Los Angeles. F. C. Anderson, formerly manager for J. W. Girvin & Co., at Portland, Oregon, will continue in charge of the belting and rubber department at Portland. The Crane Company are Pacific-coast agents for the Boston Belting Co.'s rubber belting, etc., Fayerweather & Ladew's "Hoyt" leather belting, and Gandy Belting Co.'s sewed canvas belting.

—At Denver, Col., Judge Bentley granted a default and judgment for $333.87 in the suit of the American Rubber Co., vs. Wolf J. Rosenthal.

—In St. Louis fire broke out in the basement of the Sanders Duck and Rubber Co.'s store at No. 616 Locust street, at 4 o'clock on the morning of March 15, causing damage of $200 to the stock.

—The Boston Woven Hose and Rubber Co. have begun, at Cleveland, Ohio, an attachment suit against H. D. Patterson & Co. for $1229.41 on account. Patterson is charged with having fraudulently contracted the debt, and with having concealed his assets with the intention of defrauding his creditors. The State National Bank of Cleveland was garnisheed.

—The control of the "Hudson" garden-hose mender for Canada has been secured for the present season by T. McAvity & Sons, of St. John, N. B. They are the largest manufacturers and dealers in plumbing supplies in Canada. They claim to be much pleased with the "Hudson" mender, and say that their experience with it last year was most satisfactory.

—The Berlin Iron Bridge Co. (East Berlin, Conn.) have received the contract for a new bridge at Norwich, Conn., to span the tracks of the Norwich & Worcester branch of the New York and New England railroad over the Shetucket river. The bridge will consist of one span of 145 feet, with a roadway 24 feet wide in the clear, and two sidewalks each 5 feet wide in the clear. The roadway and sidewalks will both be covered with steel buckle-plates and concrete.

—The New York Insulated Wire Co. have opened a branch office at No. 102 Sacramento street, San Francisco, to accommodate their growing business on the Pacific coast. John R. Cole, of the New York office, has gone thither to assume permanent carge.

—The Indiana Rubber and Insulated Wire Co. has moved its Chicago office to Marion, Ind., a short distance from Janesboro, where the factory is located. The Chicago trade is left in the hands of its western agents, The Electrical Appliance Co., the latter carrying a complete stock.

—Gossip continues busy with the future of the plant of the Pará Rubber Shoe Co., at South Framingham, Mass. One report is that it will be operated by the Pope Manufacturing Co. as an addition to their bicycle manufactory.

—The old rubber works at Readville, Mass., have been remodelled for the new glass business which is to be operated there. The Readville Rubber Co. ceased to do business in 1886, and the corporation was legally dissolved in the Suffolk Supreme Court, at Boston, on March 17.

—The Rubber Girls' Club, organized recently at Chicopee, Mass., is composed of sixty-five young women employed in the tire department of the Overman Wheel Co. It has a reading-room and gymnasium.

—The town of Lawton, Mich., has purchased of the Gleason & Bailey Manufacturing Co., of Seneca Falls, N. Y., a complete outfit of fire apparatus, consisting of fire-engine, hose-carts, etc.

—Speaking of the trade in Canada, the *Shoe and Leather Journal* (Toronto) says: Rubber-men have every reason to feel satisfied with the results of the season's work. It has kept jobbers busy pushing out rubber goods. One retail house in this city claims to have sold eighty cases in two days. In some of the country districts stocks have been so cleaned out that all kinds of old goods have been disposed of.

—The Mattson Rubber Co. (New York) report an excellent business in corset- and dress-shields, as well as in all their specialties. They have as yet taken no steps to remove their factory, which will soon be necessary in view of the decision now fully made to widen the street in front of their factory. The company have in years gone by adopted every expedient to concentrate their machinery into as small space as possible. This was made necessary by the expanding business, which year after required greater force and a larger amount of appliances and with no more room available. The removal of their factory will leave the lower part of New York city without a single rubber plant.

—The store of the Commonwealth Rubber Co., at No. 54 Vesey street, New York, is probably the handsomest in that locality. It consists of a basement devoted to mill supplies and the ground floor, both of which have a space of 40x135 feet. The ground floor is well lighted, finished in oak, and has every convenience and advantage for the display of goods. In the rear are three offices, one for the bookkeeper, another devoted to the correspondence of the company, and the third for the officers. The company this season carry a full line of bicycles, among which are the Humber, Gendron, Gales, and Ormonde. A full line of athletic goods is also carried in addition to the rubber manufactures of the company.

—J. A. & J. P. Lambert, of Chicago, selling-agents of the Empire Rubber Manufacturing Co., are meeting with good success in the sale of all lines of mechanical rubber goods; also rubber, and cotton rubber-linen fire-hose.

—David H. Smith & Co. are a new firm organized for the sale of rubber goods, including mackintoshes, to succeed the long-established firm of Smith & Livingston, No. 538 Broadway, New York city. Mr. Smith has been with the Metropolitan Rubber Co. (New York) for many years. His partner in the new enterprise is T. A. Weller, of Weller & Denerest, Middletown, N. Y., who will divide his time between the stores in New York and Middletown.

—It was recently mentioned in this journal that the Joseph Dixon Crucible Co. (Jersey City, N. J.) were planning to manufacture from crude material the rubber tips used in their lead-pencil factory. It is now reported that one of their buildings will be devoted exclusively to this purpose, and that 70 machines will be used in making the tips and affixing them to the pencils.

—The Portland (Me.) *Argus* quotes the local shoe-dealers as saying that the new prices adopted by the rubber companies are "simply outrageous." A meeting of the local Shoe and Leather Association was held a few days ago to protest against the new rates.

—Among the large buyers of rubber shoes who have passed through New York city recently to make their usual contracts and purchases for the season are: B. R. Wells, of M. D. Wells & Co., Chicago; A. P. Doe, of A. P. Doe & Co., Davenport, Ia.; H. Plonsky, of Butler Brothers, Denver, Col.; W. A. McGraw, of A. C. McGraw & Co., Detroit, Mich.; W. F. Breath, of Penland & Breath, and George H. Reeder, of George A. Reeder & Co., Galveston; R. M. Rhea, of Cowan, McClung & Co., Knoxville, Texas; W. H. Means, of H. C. Barkley & Co., Maysville, Ky.; Eugene B. Harris, of American Shoe Brokers, Macon, Ga.; A. L. Bryan, of U. L. Bryan Shoe Co., and J. C. Nolan, of Nolan Brothers, San Francisco; J. B. Desnoyers, of Brown-Desnoyers Shoe Co., St. Louis; and T. W. Childs, of Childs, Lee & Co., Toledo, Ohio.

—Mrs. Charles T. Wood was recently awarded a diploma from the Mechanics' Charitable Association, at Boston, for the excellencies of her patent waterproof garments. The rubber clothing of the Cleveland Rubber Co., also exhibited by her, received honorable mention. Mrs. Wood is connected with the firm of Charles T. Wood & Co., who have offices and sample-rooms at No. 67 Chauncy street, Boston, her husband being a well-known rubber-man.

—The New Jersey Car Spring and Rubber Co. are putting in a new belt press, built by the Farrell Foundry and Machine Co.

—The American Rubber Co. will have quite an extensive exhibit at the World's Fair and expect to be one of the few concerns that will have everything in shape by May 1. It will be in the building of Manufactures and Liberal Arts near the exhibit of the India Rubber Comb Co., of New York. The garments, which will be the very finest that can possibly be made, will be exhibited in two glass cases, one of which will be 4x22 feet, and the other 4x16½ feet in size, both being 10 feet high. The aisles run on three sides of the exhibit, and within the enclosure formed by the show-cases will be a table, desk, and chairs, while in the rear will be a very large mirror. There will be no selling of goods from this exhibit or any orders taken, those who call for goods being referred to the agency of the company in their immediate vicinity. The goods exhibited will consist of ladies' and gentlemen's mackintoshes, and a few samples of the fine oil-goods manufactured by the American Rubber Co.

—The New England agency for the "Oliver Twist" penholder, lately described in THE INDIA RUBBER WORLD, has been taken by C. J. Bailey & Co., Boylston street, Boston.

—W. H. Salisbury & Co., the Chicago selling-agents for the Stoughton Rubber Co., are exceedingly pleased with the season's samples that have just gone out there, and predict a very large Western trade in the Stoughton goods this year.

—The Standard Paint Co. (New York), manufacturers of ruberoid, recently received two letters, one from St. Petersburg and the other from Leipsig, Germany, inquiring about their product and referring to THE INDIA RUBBER WORLD.

—The Boston Belting Co. are arranging for an exhibit of their manufactures in Machinery Hall, at the World's Fair, in Section 15, Column J, Number 27. All the space they were able to secure was 300 square feet and in this there will be a general exhibit of belting, packing, hose, and the varied goods that they manufacture.

—A business that is growing to a considerable importance is engaging the attention of a younger son of George A. Alden, the well-known Boston rubber importer. Young Mr. Alden runs large cement-works quite near Boston, where he is now massing rubber, that is washing, drying, and grinding it for those who make their own cements. This obviates the use of expensive washing- and grinding-machinery, and gives them the rubber at exactly the same relative cost as if they bought it in crude shape and put it through the first processes themselves.

—The Tyer Rubber Co. (Andover, Mass.) are putting in a new three-roll calender, 20x60, built by the Farrell Foundry and Machine Co., Ansonia, Ct.

—The Pond Rubber Co. (Bedford street, Boston) have put in sewing-machines and are hereafter to make their own goods,—that is, they have the cloth proofed outside and do the cutting and making up in their works. This company is perhaps unique in its methods of selling, all its goods being sold by canvassers and none being sold to retail dealers.

—The Gleason & Bailey Manufacturing Co., Seneca Falls, N. Y., are to furnish a fire-engine for Greece, N. Y.

—The Boston Woven Hose and Rubber Co. a year and a half ago applied for space for an exhibit at the World's Fair, and received their assignment only a few days ago. They have decided not to make an exhibit.

—The Commonwealth Rubber Co., who have a fine store at No. 54 Vesey street, New York, have opened a very large retail department, where they handle not only mechanical goods of all kinds but clothing, druggists' sundries, gas-tubing, and general mill-supplies. They have taken the agency for a number of specialties and are doing a flourishing business. The store is fitted with fine fixtures and counters, and everything that can please the eye or conduce to the comfort of the purchaser.

—The Boston Belting Co. have a very large trade this season in their "Excelsior" rubber fire-hose and "Boston" cotton-jacket fire-hose. They are also pushing their belting, packing, and general goods, and are filling large orders from all departments.

—The Colchester Rubber Co. are having a great call for the advertising banner on which is a picture of Nancy Hanks and the trotting-sulky which she has brought into such prominence.

—The Boston Rubber Shoe Co. will have an exhibit at the World's Fair. It will be in the Boot and Shoe building and will occupy about 500 square feet. It will show all the principal styles of goods that they make, the goods exhibited being made up especially for this exhibit.

—Jobbers are wishing that the South would reach that point where they will discriminate in favor of the better qualities of rubber goods.

—H. A. Tillinghast, manager of the Tillinghast Rubber Co., reports that after three years in Baltimore he has cause for a large measure of satisfaction. His annual sales of hose now reach 250,000 feet, and of tubing, 100,000 feet. He says he is doing well with his oleo cloth, which is rubber and linseed-oil combined, giving in mackintoshes a soft touch and excellent wear, not altogether unlike the substitutes used in foreign and domestic goods. Mr. Tillinghast has succeeded in getting the acknowledgment of the insurance people that these goods will not readily catch fire, a quality shared by only two or three other makes.

—Baltimore rubber-men report a good trade from Virginia and North Carolina this season.

—Trade in North Carolina and the other cotton states is subject to the vicissitudes of slow collections. The cotton planter begins in January to mortgage his next crop, and it is often Christmas before he succeeds in straightening out his finances. This keeps the community in those sections in a state of chronic impecuniosity, and is far from pleasant all around.

—McDonnell, Payne & Co., of Baltimore, report an abundance of success since the establishment of their firm. Tennis goods are opening up in excellent shape. They have three men traveling in the South, who are sending in good orders.

—The Berlin Iron Bridge Co. (East Berlin, Conn.) have secured the contract for the new buildings required by Wm. Cramp & Sons' Ship and Engine Building Co., of Philadelphia. The Berlin Iron Bridge Co. have lately completed a boiler-shop for the Cramps, and now have a contract for all the other buildings required to enlarge their plant. The new buildings will consist of a ship-shed 60 feet by 100 feet, a blackboard 75 feet by 200 feet, and a bending-shed 86 feet by 150 feet, constructed throughout of iron. The Berlin Iron Bridge Co. have just completed a power-station 38 feet wide by 112 feet long, for the Roaring Fork Electric Light and Power Co., at Aspen, Colo.

—The Gleason and Bailey Manufacturing Co., of Seneca Falls, N. Y., has a contract for furnishing the Kirkwood Patent Grate-Bars for the boilers at the waterworks of Rochester N. Y.

—Pennsylvania, as a State, is probably the largest consumer of rubber goods in the country. Traveling men who start in that State never find time to leave it. One reason for this is the large number of manufactories requiring mechanical goods, and the whole community has rubber constantly before it, and the needs in that line reach that promptly a natural solution.

—C. A. Daniels, of the Quaker City Rubber Co. (Philadelphia), is rushed with business; indeed the growth of his trade for the last year has been phenomenal.

—Boston, Providence, New York, and Philadelphia retailers jumped for the stock of rubber shoes on hand when they heard of the new discounts.

—The Monarch Rubber Co. (Brockton, Mass.) have adopted the Locke Damper Regulator.

—Rubber-shoe salesmen are selling the usual quantity of hip boots in the vicinity of Chesapeake bay. The sportsman and the railroad man will always have the rubber boot or shoe the business they believe was established for them.

—The Omaha Rubber Co., incorporated, are reported by the Associated Press dispatches as having failed on April 5, for $50,000; assets possibly $35,000. It is stated that the immediate cause of this assignment was the filing of petitions in the office of the District Clerk of Douglass county (Neb.) by the Commercial Bank praying judgment for a note of $16,458, and another filed by the Goodyear India Rubber Glove Co. for $16,923. It is said that the company has many Eastern creditors.

—The Post-Office Department at Washington will receive until noon of April 23, proposals for the furnishing of rubber bands, penholders, rulers, and erasers for use for the year beginning July 1, 1893. The superintendent of the division of post-office supplies in Washington will furnish blanks, specfications and instructions with regard to each article with estimated quantities to parties desiring to bid.

—John Lippincott, Jr., representing Young, Creighton & Diggs, of Baltimore, says that there is a surprising demand for tennis-shoes in southeastern Pennsylvania, and every one seems to want black tops. The demand for "rubbers" is not yet large, his trade calling mostly for seconds. In fact country people in the southern section of that State, and still farther on, have not learned to discriminate in favor of the better qualities.

—The Mechanical Rubber Co, (New York) have declared a semi-annual dividend of 4 per cent. on the preferred and 3½ per cent. on the common stock, out of the earnings of the company, payable on and after May 3, 1893, at the office of August Belmont & Co., No. 23 Nassau street, New York. August Belmont, of this firm, is the treasurer of the rubber company.

—The Rhode Island Coupling and Rubber Co. have lately been incorporated at Providence. It is the well-known Rhode Island Coupling Co., with more capital and the addition of a full line of mechanical rubber goods and mill-supplies. They will sell hose of their own brands called "Blackstone," "Dorrance," "Narragansett," "Weybosset," and "Westminster," They have added a new store in connection with their old one on Dorrance street, and as there is no strictly jobbing house in their line in Providence, they fill a definite want in that quarter.

—It will be remembered that the Enterprise Rubber Co. had a very fine store at No. 135 Essex street, Boston, but the recent disastrous fire in the city destroyed that so quickly that the three partners could simply save their books and a few important papers. They were not at all rattled by the sudden calamity, however, but while their mackintoshes, boots and shoes, and other goods were going up in the blackest smoke, the senior partner was telephoning an order for printing, another partner was writing a circular, stating that although the firm had suffered a total loss by fire, it was still on deck and that a stock of goods was on the way, also asking customers who had back orders unfilled to send duplicate orders. The third partner, meanwhile had engaged Room 254, No. 116 Bedford street. Six hundred of these circulars were sent out before 9 o'clock that evening, being by far the promptest and most business-like notification of loss by fire and change of base that has come to our notice. In one way it redounded to their credit and duly benefited these young men, for nearly all the Boston newspapers made an extended note of the fact, and were unstinting in their praise of its promptness.

—H. P. Emerson, proprietor of the Emerson Rubber Works (Reading, Mass.), whose Boston store was partly destroyed by the big fire on March 11, is hobbling round with his knee in a plaster cast. The day after the fire he was climbing over the water-soaked assortment that comprised his stock, when he slipped and fell and sprained his knee. He is however still in business and his mill is already turning out some fine mackintoshes. His office is now at No. 33 Bedford street.

—The Metal Last and Tree Co., who were burned out in the late Boston fire, are back at their old office, No. 105 Summer street, Boston.

—B. F. Pennington, manager of the Standard Rubber Corporation, has been on a business trip to Philadelphia and other cities.

—The expenditures for fire-hose by the city of Baltimore for 1892 amounted to $8408.65. The estimated necessary expenditure for 1893 is $8500. The secretary of the fire-department is David H. Lucchesi.

—C. A. Rosengren, who has been in charge of the New York office of the Standard Rubber Corporation (Brockton, Mass.) since January 1, reports an excellent business in clothing, with the exception of the two weeks before Easter. Mr. Rosengren succeeded T. F. McCarty, who at the time mentioned cast his fortunes with the Boston Gossamer Co., which company reports a large business, the factory at Hyde Park, Mass., being run to its full capacity.

—The New York Belting and Packing Co. are receiving numerous orders for sulky and wagon pneumatic tires of the Michelin type. The business is not expected to reach the magnitude of the bicycle trade, but so far is constantly beyond the capacity of the plant devoted to it.

—THE INDIA RUBBER WORLD has a note from a subscriber stating: "I have a formula for making white hard rubber and if it is worth anything to your correspondent of last month he can have it. Correspondents are invited to send letters for me in your care. Very truly yours, J. P. E."

—A prominent English rubber manufacturer has ordered a 30-foot belt-press of the Farrel Foundry and Machine Co., Ansonia, Conn.

—E. H. Paine, of the American Rubber Co., passed through New York on his way home from Baltimore and other cities. He said: "We expect to do a large business this season, everything favoring it. Our trade South is constantly growing. We have virtually closed up the tennis-goods business for the season."

—One of the leading manufacturers of mechanical rubber goods said the other day: "We have noticed in our business for the past six years that it has not varied $100,000. Lean years and fat, we keep on at about the same gait; and we have not striven for low-priced contracts. We let the other fellow busy himself in trying to get rich by taking business at which the profit is just apparent, and not real."

INDIVIDUAL MENTION.

MR. JAMES BENNETT FORSYTH, on his recent trip to Bermuda, had an exceedingly rough passage, but as he is an excellent sailor it troubled him very little. He will probably be back at his Boston office by the time this number of THE INDIA RUBBER WORLD goes to press.

—Mr. William Hayward, son of the founder of the Hayward Rubber Co., who has occupied a position as railroad commissioner in Connecticut for a number of years, makes way for another man under the new administration. Mr. W. A. Buckingham, treasurer of the old Hayward company, was talked of for the place, but it is understood that another berth has been selected for him.

—Deacon John Parker, one of the oldest leather-shoe men in the country, died in Malden in March, aged ninety-four years, nine months, and eleven days. He was the father of John H. Parker, the rubber-boot manufacturer, and C. F. Parker, of the Metal Last and Tree Co.

—Superintendent Elliott, of the L. Candee & Co. (New Haven), has been quite ill for a week or more past.

—William Lincoln Sage (Boston), who leases five miles of a trout brook in Colchester, Conn., started out for fish April 1, and caught twenty-two good ones.

—Frank Phelan, formerly with The F. J. Kaldenberg Rubber Co. (New York) is down in Maine, where he is running a country store and a farm.

—Stephen F. Doty, of the Atlas Rubber Co., has added to his income $2 a day for a month past by doing duty on the jury. Naturally he was disgusted, but every cloud has its silver lining, and he thought the world was bright and joyous when he was excused from a murder trial. His partner Eugene Herbert had not at that time returned from a three months' trip, which was more than successful.

—The people of Malden, Mass., were recently agitating the question of raising money for a handsome new building for the Young Men's Christian Association. The Hon. E. S. Converse gave the plan a great boom by offering to give $10,000 out of the first $40,000 raised; $15,000, if $50,000 was subscribed; $20,000 if it reached $60,000; $25,000 if it grew to $70,000, and $30,000 if they raised $80,000. The night that he made the offer $42,000 was pledged and the committee say that $70,000 is in sight.

—N. C. Locke, the damper-regulator man of Salem, Mass., caught a fourteen pound tautog on a light tackle while fishing off Beverly Bridge last season. A boy using a keg as a landing net helped him out. He is waiting for "the season" now to try for a twenty-pounder.

—George Ayres, formerly a well-known salesman in the mechanical-goods trade, is running a farm at Oakham, Mass.

—W. J. B. Stokes, Vice-President of the Home Rubber Co., has been nominated for mayor of the city of Trenton, N. J. He is very popular with both Rupublicans and Democrats and it is confidently predicted that he will be elected.

—George B. McClellan, the former manager of the New York office of the American Rubber Co., is still managing the Pauline Hall troupe. He was met on the Albany boat a few days ago, talking music, plays, etc., as glibly as he ever discussed rubber, and was listened to by the old stagers in his new business.

—H. A. Churchill, in charge of the rubber cloth department of J. Galt Smith & Co., New York, has been spending a week at Cape May.

CRUDE RUBBER.

THE steamer *Hilary* (Captain Crimp), which arrived in New York on March 25, brought the largest cargo of rubber ever shipped to this port. It consisted of 1,331,700 pounds, more than half of which was "fine," and nearly two-fifths of which came to the New York Commerce Co. Shipton Green, the Boston Rubber Shoe Co., and Reimers & Meyer, were also large consignees.

—The steamship agents say that arrivals of centrals are falling off rapidly, especially from Colombia. They state the probable reason to be that it is the dry season, consequently boats cannot go up the rivers. On the Magdalena river steamers are of very light draught, one drawing only thirteen inches, going where the traditional dew has fallen, but it seems that this is not the proper time of the year even for that slight moisture.

—Among the receipts of rubber by the Panama steamer *Colombia* last month was one consignment stated as "Five Zeroons." A zeroon is a cow's hide, and to sew a commodity up in it, is to provide a very safe means of transportation. It will not break or split, and the fastenings are of leathern thongs. Being pliable, it makes the burden easy upon the back of the mule, by which mode of transportation the bulk of rubber finding its way to export on the west coast of South America is transported. Hides are cheap in that section of the world; still the envelopes can be utilized here after their contents have been removed. Zeroons are used considerably for indigo, but seldom for rubber; in this case the hide was perhaps the only available article.

RUBBER SALESMEN ON AND OFF THE ROAD.

MR. C. H. DALE was born in New York city, thirty-nine years ago. He was the son of a physician and went to the public schools in New York until he was thirteen years old, when, with the idea of studying law, he took a semi-collegiate course, studying until he was sixteen years of age. At that time he had the "railroad fever" very badly, and insisted that it was better for him to become a good railroad-man than an indifferent lawyer. His father, finally listening to his persuasions, sent him to a friend of his who had wide influence in railroad circles, who in turn recommended him to Mr. S. S. Merrill, general-manager of the Chicago, Milwaukee and St. Paul railroad. Mr. Merrill, being an exceedingly practical man, determined to put the boy in a place where he could try his grit, so sent him out one dark, rainy night as brakeman on a freight-train. Young Dale was not exactly prepared

C. H. DALE.

for this sort of a job, as he had on a $75 suit and was something of a "dandy." But he stuck to his post, although wet as a drowned rat, and twisted and untwisted the brake at regular intervals when the occasion demanded. The conductor about midnight, invited him into the caboose, but he refused, saying he was quite comfortable where he was, the fact of the matter being he hated to risk climbing between the cars when the train was moving at full speed in the darkness. The general-manager was so well pleased with the boy's work on the first night that he gave him every advantage and allowed him to climb upward as fast as he could. Before many years he had risen from brakeman to conductor, and up through every position to that of superintendent of transportation, and it was while acting in this latter capacity that he was attracted to the plant of the Peerless Rubber Co., which was being put up at New Durham, Conn. He was familiar with the trials that railroad-men had encountered in trying to get a first-class air-brake hose, and this further attracted him to the rubber business. It therefore came about that he became acquainted with the president and treasurer of the Peerless company, and finally gave up railroading and entered the rubber business. He found in his new associates the heartiest coöperation, and as he knew the railroad trade so thoroughly, he was able from the start to book good orders and to suit his customers. The "Rainbow" packing, which has been such a phenomenal success, came from his suggestion, coupled with the inventive ability of Mr. E. L. Perry, the company's superintendent. The first year fifty tons of that was sold, the third year 125 tons, and for the first two months of the present year, the sales have been as large as for any six months in the previous year. In all the goods that the company make, it has been their policy to have them of high grade, and Mr. Dale has made no secret of the fact that they put a good price on them. Indeed, so often has he let fall the remark (particularly in the west) that "their company were not in business for their health," but to make money, that in many places his cognomen has become, "the man who is not in business for his health." Personally, Mr. Dale is a young-looking, jolly, wholesome fellow, with an unlimited amount of good nature, tireless energy, and a capacity for making friends that is phenomenal.

* * *

SHORT TRIPS.

AMONG the very wide-awake and active young men that Manager McClymonds, of the New York Belting and Packing Co. have brought east, is Mr. E. A. Peacock, who will be remembered in Chicago. The department under his care is kept to the front by push and energy, and Mr. Peacock has made many friends in New York, as well as among the hundred of out-of-town customers of his company who visit the metropolis.

—Frank Ouerbecker, who represents the Stephen Ballard Rubber Co. in Kentucky, has been very successful with their line of mechanical goods. Mr. Ouerbecker is a recent addition to the staff of travelers who are selling the well-known brands of hose and belting of the Ballard company.

—The Lake Shore Rubber Co. have secured the services of William T. Moseley, formerly of the Southern Rubber Co., of Richmond, Va. Mr. Moseley will travel south, where he is well known, and where he has always had a large trade on belting.

—Edward F. Tolson has accepted a position as traveler for the Patapsco Rubber Co., of Baltimore, and will travel in the territory he formerly had when with Janey & Congdon. Mr. Tolson has been out of the rubber business for two years, and has been manufacturing a pea-huller, in which a rubber cylinder patented by him forms an important part of the machine. He will still continue during the packing season of peas to furnish his huller to the packing-houses.

—New England is a territory well covered by rubber-men in all lines, but J. H. Moore, who is the New England representative for the Stephen Ballard Rubber Co., finds an increasing demand for their goods.

—James D. Ferguson was one of the first on the road to show samples and take orders for shoes at the new price on the new list. It is needless to say that the Glove company's samples are handsomer than ever.

—E. C. Deardoff is seen a good deal in New York now. Mr. Deardoff has been transferred from the Cleveland Rubber Co. to the New York Belting & Packing Co., and is busy with the large line of this company.

A VETERAN RUBBER-MAN RETIRES.

JOHN C. BALDERSTON, who soon retires from the National India Rubber Co., is one of the veterans in the rubber business. He was the agent of the old Providence Rubber Co. in 1857. When, in 1865, it was turned into the National, and new works built, he was made vice-president and took charge of the sales of the boots and shoes. He formed the "Co." of Balderston, Ward & Co., in Baltimore, which in 1875 was given up because of the agreement that the National should have selling agencies only in Boston and New York. He went to Boston in 1876 and was in the Company of Clapp, Balderston & Co. In 1878 this partnership expired by limitation. The senior Daggett of the New Brunswick Rubber Co. then put his son into business assisting to form the company known as Balderston & Daggett, which handled the footwear of the National and New Brunswick Companies. This held until 1889, when the National Company sold the goods under their own name, Mr. Balderston acting as selling agent and holding the office of vice-president.

AN ATTRACTIVE WINDOW DISPLAY.

THE best window display for a rubber store yet reported was that of the Cleveland Rubber Co.'s Cincinnati store. It consisted of crude rubber in all the unique shapes and forms in which it is received. The different grades of crude gum were shown in the washed condition, in sheeted form, and made, by blending the different colors, a very handsome background. In looking into the window from the street, it was as if one were looking into a cave or grotto made of rubber. There was also shown compounded stock in different shades and colors, and last, but not least, finished and unfinished stock ready to make the "seamless tube for high-grade hose" of which this concern make such a specialty. The window, take it all in all, was one of the most attractive displays ever exhibited in Cincinnati, and the interest taken by passers-by was at times so great as to almost interfere with the ordinary street travel. A laughable occurrence in connection with this display came with the labeling of a huge chunk of Cameta "Sweet Potato." An old farmer upon reading the label and not having caught on, walked in to enquire where the seed for potatoes like that could be had.

AN ELASTIC-WEB "COMBINE."

THE following report was published during the last week in March, as a press telegram from Rockland, Mass.:

"The announcement is made here that the elastic-web concerns of the country, which manufacture rubber goring for the shoe trade, are about to pool their issues. The work of organization has been going on quietly for some time, and it is expected that the final arrangements will be completed within a few weeks. The leading concerns in the deal are the Herbert & Rapp Co., of Brockton, Mass.; Dean, Chase & Co., Rockland, Mass.; T. Martin & Brothers, Chelsea, Mass.; Bridgeport Elastic Web Co., Bridgeport, Conn., and the Brighton Mills, Camden, N. J. Then there are smaller concerns in Norwalk, Conn., Lowell, and South Boston that will be interested in the deal. A prominent member of the proposed combine states that the movement does not contemplate a trust in any sense. It is not the purpose to have a central plant, the different mills carrying on their business as at present. There will be a central office, probably in Boston, which will simplify matters and reduce expenses materially. Another advantage will be that the raw material, such as cotton, wool, silk, and rubber, can be purchased in larger quatities, and consequently at better prices.

Respecting the proposed combination, the president of the Bridgeport (Conn.) Elastic Web Co. writes to the New York *Tribune*:

Your article in your issue of to-day on the combination of elastic-web weavers is incorrect, so far as concerns our company. Our factory is larger than any one of the other four mentioned. We have not entered and do not expect to enter into any combination or trust with them.

E. STERLING.

Bridgeport, Conn., March 28, 1893.

WRINGER-REPAIRING IN NEW ENGLAND.

THE ordinary every-day man believes that a wringer-roll is simply used in a machine for squeezing the water out of clothing. There is, however, a large use for these rubber rolls in other lines. A large wringer is made, for example, for drying out seines and various kinds of fishing-nets; another is used on a machine in copying letters; telegraph-operators and express companies use another machine that has rubber rolls; bookbinders have a machine of their own that is useful in rolling down covers; a special machine is made for dye-house use; hotels have a very large wringer for their use; stables use a wringer for drying chamois skins, and all laundries have mammoth wringers that are run by power. The concern that in a retail way uses more rolls in New England than any other is known as Prescott Brothers, located on Cornhill street, Boston. They use about 1200 dozen rolls yearly in New England, and as the consumption in all the New England States is 2000 dozen, it will be seen that they have by far the largest business. They show about two dozen sizes of wringers in stock. A peculiar part of their business is that of repairing wringers. This means oftentimes that when an old wringer is sent in the rubber is cut off the shafts and a new roll is either vulcanized or sprung on. It may happen that they allow a certain amount for the old wringer in exchange for a new one, breaking it up, saving the shafts, while the rubber is sold for scrap. The scrap brings about 5 cents a pound, and the old wood work makes good fuel. In this business of repairing Prescott Brothers keep five men at work. The largest roll that they sell comes to about $100, while the smallest would sell at 50 cents. Where a roll is to be vulcanized the shaft is taken out and sent to the factory where it is molded on by a secret process which sticks the rubber fast to the metal. Where, however, the tube rolls are needed, the shaft is wound with twine and cemented and the tube is sprung over it. A wringer-machine frame as a rule will wear out two or three pairs of rolls, and people save about one-half in having their wringers repaired.

FOR many uses the rubber stopple is now considered indispensable. Unlike the cork it is durable and readily handled, and unlike glass, it is perfectly air- and water-tight. The regular style tapers the most, and for general use it is sold in thirteen numbers, beginning with 0 and ending at 7, the numbers graduating by halves. The largest are about one inch long, and the smallest one-half. The Government style has very little taper. In a stopple 1¼ inches long there will be but $\frac{3}{16}$ of an inch, and in the smaller sizes ⅛ inch. There are in these ten sizes, numbered regularly, the longest being 1¼ inches. Laboratory stopples are made of pure, semi-pure or antimony rubber, the first named costing 25 per cent. more than the others. They are made as long as 1¾ inches, with a diameter at the top of 2½ inches. When required they are made with a hole extending through them for the purpose of ventilation of laboratory articles.

REVIEW OF THE RUBBER MARKETS.

THE visible situation of the crude-rubber market varies slightly from the conditions reported one month ago. There has been an advance of one or two points in Pará grades, and the tendency of the market is in general upward. Reports are current, as is usual at this season of the year, of renewed efforts at the mouth of the Amazon to corner the product of crude-rubber. While definite particulars are wanting, the name of Vianna naturally has crept into the reports, due in part doubtless to the rumor that he is establishing a house in London, and the fact that his brother was in New York of late, presumably upon business connected with the rubber trade. Certain it is that leaders in the market in New York are convinced that a syndicate of considerable strength has been formed in Pará to advance the price of gum. As an indication of its financial standing, shipments of rubber to this port have not been drawn upon of late to the usual extent. The steamer *Hilary*, arriving within a month, brought 660 tons, and to the surprise of the local market only 50 tons were offered for sale. The idea which once prevailed of the possibility of "cornering" rubber have undergone considerable change in recent years, and it is impossible for any reports in this connection to create any panic in the trade. Nevertheless such efforts do have a disquieting effect temporarily in unsettling prices. It is in the spring usually that these movements originate, this being the season when the receipts begin to fall off, and when the year's crop is well sized up, so that the danger in attempts to corner the market are the least. The Pará speculator in such cases feels that any increase in the world's supply of rubber from other sources will take time, so that his efforts are in no immediate danger from any such source. Enropean manufacturers have learned to buy rubber when it is most plentiful, but American manufacturers do not seem as yet to have adopted this course, and their delay usually ends in a fight with the Pará speculator.

Rubber is at the present very firm. More business was done in the month just closed than in the month preceding, and more in that month than in the one before. Receipts have been very large and offerings small.

Centrals are freely taken to arrive, as also are Africans.

The world's visible supply of Pará rubber on March 31, 1893, compared with a date one month before, and one year before, was as follows, amounts being stated in tons:

	March 31, 1892.	March 31, 1893.	February 28, 1893.
United States	784	1109	1070
Liverpool	1490	555	490
Pará	630	1730	2120
Afloat	719	1520	530
Total	3623	4814	4210

It will be seen that stocks have increased, some rubber which has been concealed coming out.

The latest quotations in the New York market are:

Pará, fine, new	76@78	Sierra Leone	24@48
Pará, fine, old	80@82	Benguela	52@53
Pará, coarse, new	52@58	Congo Ball	36@42
Pará, coarse, old	56@60	Small Ball	33@36
Caucho (Peruvian) strip	54@55	Flake, Lump and Ord	32@33
Caucho (Peruvian) ball	60@61	Mozambique, red ball	——
Mangabeira, sheet	36@42	Mozambique, white ball	——
Esmeralda, sausage	53@54	Madagascar, pinky	58@62
Guayaquil, strip	40@42	Madagascar, black	42@45
Nicaragua, scrap	53@54	Borneo	28@45
Nicaragua, sheet	51@52	Gutta-percha, fine grade	1.75
Guatemala, sheet	38@43	Gutta-percha, medium	1.15
Thimbles	41@42	Gutta-percha, hard white	1.10
Tongues	35@40	Gutta-percha, lower sorts	nominal.

The statistical position of Pará rubber in New York is thus reported for March, 1893, as compared with the same month in preceding years:

Stock of Pará here,	February 28,	about	3,000,000 pounds.
Receipts	March,	"	1,950,000 pounds.
Deliveries	March,	"	2,725,000 pounds.
Stock	March 31, 1893,	"	2,225,000 pounds.
Stock	March 31, 1892,	"	1,750,000 pounds.
Stock	March 31, 1891,	"	2,100,000 pounds.

PRICES FOR MARCH.

	1893.		1892.		1891.	
	Fine.	Coarse.	Fine.	Coarse.	Fine.	Coarse.
First	76	53	67	47	87	60
Highest	76	53	72	52	91	61
Lowest	75	51	67	47	90	60
Last	76	51	71	50½	90	60

In regard to the financial situation, Messrs. Simpson & Beers, brokers in crude India-rubber and commercial paper, New York, advise us as follows:

"Although our money market was stringent during March, particularly for time money, a striking feature for this month was the general scarcity of strictly prime rubber paper; what was obtainable being mostly taken by out of town banks at 7 per cent. Conditions favor a 6 to 7 per cent. market for the month for rubber paper. A continuance of gold exports appears inevitable, our merchandise account being constantly increased and our exports of grain and cotton largely behind last year. We quote prime endorsed paper: 6 months, 7 to 7½ per cent.; 4 months and less, 6½ to 7 per cent., with a limited supply and demand."

THE RUBBER-GOODS TRADE.

THE principal feature of interest during the month has been the adjustment of list prices on boots and shoes for the season now commencing. The announcement of them has been received with varied criticism and approval which has not abated. Salesmen in the country have not had much opportunity to test the sentiment of the final customer, but it is safe to say that the average retailer does not like the new order of things.

There has been little or no business done yet on the new basis, but before the list went into effect there was large buying from all quarters, and at the moment many a jobber is felicitating himself upon his shrewdness in obtaining a good stock upon which he expects the advance in prices. Whether this old stock will lodge at full prices remains to be seen, and perhaps some shading will be done. It will be difficult however, to cut prices in the future, for the jobber's extra 5 per cent. depends upon his good faith in adhering to the contract now given. As for the retailer, his 20 per cent. is a trifle small for him to shade and he will be kept in line without much trouble.

In tennis-shoes there is every evidence of a large business, the people in the country simply awaiting the first warm breath of spring to add these articles to their footwear. Travelers report numerous inquiries for them from small retail stores in outlying districts.

In mechanical goods there is an abundant demand and to some extent the hose trade is awakening. Manufacturing interests are yet increasing and so long as these keep up there will be a good demand for packing and belting. In the agricultural regions bad roads have been the rule, and the usual demand from those sections has been somewhat limited. Still there is abundant evidence that there will be a large call this season. From railroads there is constantly a growing demand for specialties used by the companies.

IMPORTS FROM PARA.

THE imports in detail of rubber direct from Pará at the port of New York, since our last report, have been as follows, all quantities being expressed in pounds:

March 12.—By the steamer *Cearense* from Pará:

	Fine.	Medium.	Coarse.	Caucho.	Totals.
New York Commercial Co.	178,700	39,800	101,200	46,000	365,700
Reimers & Meyer	62,900	17,800	34,600	28,300	143,600
G. Amsinck & Co.	48,900	10,200	19,100	....	78,200
Shipton Green	36,400	3,800	33,000	....	73,200
Boston Rubber Shoe Co.	7,500	100	4,800	33,100	46,500
Lawrence, Johnson & Co.	12,500	1,100	24,600	....	38,200
Joseph Banigan	12,100	1,100	5,400	....	18,600
Otto G. Mayer & Co.	7,500	....	900	....	8,400
P. Lima	2,400	....	1,100	....	3,500
Total	368,900	74,900	224,700	107,400	775,900

March 23.—By the steamer *Hilary* from Pará:

New York Commercial Co.	339,100	72,700	74,700	....	486,500
Shipton Green	163,200	27,000	64,700	...	254,900
Boston Rubber Shoe Co.	104,900	20,000	66,200	...	191,100
Reimers & Meyer	57,100	32,800	70,800	300	161,000
Joseph Banigan	59,900	17,100	21,000	....	98,000
C. Ahrenfeldt & Son	2,500	....	400	60,400	63,300
W. R. Grace & Co.	27,500	4,600	20,400	....	52,500
Lawrence Johnson & Co.	11,400	300	3,000	....	14,700
P. Lima	3,200	400	1,800	....	5,400
Sears & Co.	....	....	....	4,000	4,000
G. Amsinck & Co.	300	....	....	....	300
Total	769,100	174,900	323,000	64,700	1,331,700

April 1.—By the steamer *Basil* from Manáos and Pará:

Reimers & Meyer	174,500	48,300	56,400	1,500	280,700
New York Commercial Co.	163,600	29,700	50,000	....	243,300
Boston Rubber Shoe Co.	87,000	24,000	34,200	....	145,200
Joseph Banigan	86,900	24,000	34,200	....	145,100
Hegemeyer & Brunn	70,000	11,400	16,800	....	98,200
G. Amsinck & Co.	17,200	2,500	14,600	17,700	52,000
Shipton Green	17,900	1,700	10,000	13,800	43,400
Lawrence Johnson & Co.	16,500	2,500	24,200	....	43,200
E. Schlenter & Co. L'pool.	14,100	2,700	11,000	....	27,800
Kunhardt & Co.	10,600	8,200	....	....	18,800
Lazard Freres	1,800	....	....	...	1,800
Total	660,100	155,000	251,400	33,000	1,099,500

April 2.—By the steamer *Seguranca* from Pará:

New York Commercial Co.	200,200	52,800	67,100	....	320,100
Joseph Banigan	29,300	10,300	19,000	....	58,600
Boston Rubber Shoe Co.	23,200	11,400	2,400	12,500	49,500
Lawrence Johnson & Co.	21,400	8,200	12,000	....	41,600
Reimers & Meyer	....	4,300	1,800	14,300	20,400
W. R. Grace & Co.	....	....	14,400	....	14,400
Total	274,100	87,000	116,700	26,800	504,600

IMPORTS OF CENTRALS.

BELOW will be found in detail the imports at New York, during March, 1893, of India-rubber from Mexico, Central America, and South America, other than Pará grades:

MARCH 3.—By the *Athos*=Cartagena: POUNDS.

H. S. Forwood (for London)	22,200

March 5.—By the *Newport*=Colon:

[Ex *City of Sidney*=Central America.]

J. Aparicio & Co	13,230

[Ex *Barracouta*=Central America.]

Jacob Baiz	1,555
Munoz & Esprella	796
Hoadley & Co	343
J. Aparicio & Co	2,229
A. P. Strout	333

[Ex *Casma*=South Pacific Ports.]

G. Amsinck & Co.	6,971
Hoadley & Co.	325
Andreas & Co.	2,000
J. M. Ceballos & Co.	1,270
S. Samper & Co.	2,450
W. R. Grace & Co.	2,763

[Ex *Santiago*=South Pacific Ports.]

To Order	5,738
Hoadley & Co	702
J. M. Ceballos & Co.	6,500
Total	46,295

MARCH 6.—By the *Orizaba*=Vera Cruz:

F. Probst & Co	200
H. Marquardt & Co	410
Total	610

MARCH 8.—By the *Jason*=Central America:

G. Amsinck & Co. (Livingston)	250
A. S. Lascelles & Co. (Puerto Cortez)	400
Munoz & Esprella (Greytown)	8,000
A. P. Strout (Greytown)	28,000
Fabian & Munely (Greytown)	3,600
Total	40,250

MARCH 10.—By the *San Marco*=Colon:

[Ex *Mapocho*=South Pacific ports.]

J. M. Ceballos	27,100
Herzel, Feltman & Co.	3,050
To Order	7,925
Hoadley & Co. (Panama)	1,300
G. Amsinck & Co. (Panama)	29,825
Bock & Co. (Panama)	17,400
Total	86,000

MARCH 11.—By the *Unita*=Colon:

Piza Nephews & Co. (Colon)	5,100
E. Garaus (Puerto Cortez)	175
Total	5,275

MARCH 13.—By the *Carib*=Puerto Cortez:

Eggers & Heinlein	5,100
J. Agostini	2,650
Jacob Baiz	675
Total	8,425

MARCH 13.—By the *Colombia*=Colon:

A. Ratholz	396
Eggers & Heinlein	1,000

[Ex *Arequipa*=South Pacific ports.]

J. M. Ceballos & Co.	3,000

[Ex *Quito*=South Pacific ports.]

F. G. Tomas	170
Hoadley & Co.	868
W. R. Grace & Co.	7,858
Andreas & Co	660
G. Amsinck & Co.	3,612
Munoz & Esprella	2,977
C. Roldan & Van Sickel	3,000
To Order	1,157

[Ex *Costa Rica*=Central America.]

Lanman & Kemp	187
Munoz & Esprella	1,380

(Ex *Starbuck*=Central America.)

J. Aparicio & Co	225
Munoz & Esprella	2,125
Hoadley & Co	2,714
Total	31,929

MARCH 14.—By the *Ciudad Condal*=Vera Cruz:

P. Harmony's Nephews & Co.	275

MARCH 22.—By the *Andes*=Colombian ports:

Pim, Forwood & Co. for London (Cartagena)	12,500
Kugelmann & Co. (Cartagena)	750
Punderford & Co. (Cartagena)	1,000
W. R. Grace & Co. (Cartagena)	1,200
S. Samper & Co. (Savanilla)	600
Ellinger Brothers (Port Limon)	1,500
Total	18,150

MARCH 23.—By the *Yucatan*=Mexican ports:

J. Agostini (Frontera)	150
L. Monjo, Jr., & Co. (Tuxpan)	150
Graham, Hinkley & Co. (Vera Cruz)	900
Total	1,200

MARCH 23.—By the *Miranda*=Central American:

A. S. Lascelles & Co. (Porto Cortez)	150
G. Amsinck & Co. (Greytown)	600
A. P. Strout (Greytown)	14,100
J. W. Uppermann (Greytown)	1,500
Total	16,350

MARCH 23.—By the *City of Pará*=Colon:

Eggers & Heinlein	420

[Ex *San Jose*=Central America.]

Munoz & Esprella	1,480

[Ex *Barracouta*=Central America.]

Ellinger Brothers	1,307

[Ex *Mendoza*=South Pacific.]

W. R. Grace & Co.	7,840

[Ex *Casma*=South Pacific.]

Herzel, Feltman & Co	3,253
F. G. Pierra & Co	1,780
W. R. Grace & Co	1,415
G. Amsinck & Co	825
Herzel, Feltman & Co	885
Andreas & Co	2,150
A. Cossin	625
C. Roldan & Van Sickel & Co	1,730
Munoz & Esprella	2,860
Total	25,970

MARCH 25.—By the *Alamo*=Colon:

Jose Agostini (Panama)	800
G. Amsinck & Co. (Panama)	11,545
Bock & Co. (Panama)	4,556

[Ex *Cachapore*=South Pacific.]

J. M. Ceballos & Co	3,280
W. R. Grace & Co. (Ecuador)	3,000
To Order (Ecuador)	3,100

[Ex *Imperial*=South Pacific.]

To Order (Ecuador)	6,710
Total	32,991

MARCH 27.—By the *Alvena*=Port Limon:

Griggs, Gould & Co.	1,050

MARCH 31.—By the *Seneca*=Mexican ports:

Graham, Hinkley & Co. (Vera Cruz)	350
Samuel Hermanos (Vera Cruz)	175
C. Viador (Vera Cruz)	1,850
J. W. Wilson & Co. (Tuxpan)	3,150
Total	5,525

Total Imports of Centrals	277,459
Total for February	244,526
Total for January	222,308
Total for December	208,196
Total for November	297,100
Total for October	207,715
Total for September	140,756

BOSTON ARRIVALS.

MARCH 1.—By the *Sagamore*=Liverpool: POUNDS.

Reimers & Meyer, Africans	28,400

MARCH 7.—By the *Nessmore*=London:

Ropes, Emmerton & Co., Madagascar	7,500

MARCH 9.—By the *Angloman*=Liverpool:

Reimers & Meyer, Africans	28,000

MARCH 14.—By the *Ludgate Hill*=London:

George Ropes, Madagascar	3,800

MARCH 16.—By the *Kansas*=Liverpool:

Reimers & Meyer, Africans	20,500
George A. Alden & Co., Africans	11,250

MARCH 20.—By the *Catalonia*=Liverpool:

Woonsocket Rubber Co., Africans	84,000
Reimers & Meyer, Africans	30,000
Boston Rubber Shoe Co., Africans	650

MARCH 28.—By the *Ottoman*=Liverpool:

Reimers & Meyer, Africans	7,500
Total Imports for March	221,400
Total for February	525,513
Total for January	309,640
Total for December	255,120
Total for November	297,100
Total for October	100,650